Chapter 3
Towards an Ontogenetic Approach to Soviet Military City Plans: A Post-Representational Epistemology

> City plans are intended for the detailed study of cities and their approaches, for orientation, and for the production of accurate measurements and assessments in the planning and the execution of measures significant for the national economy and for defence. (Article 1, Manual for Cartography and Cartographic Reproduction Works: Part 4—Compilation and Preparation for Printing of City Plans; General Staff [21])

Throughout much of the twentieth century, the dominant paradigm in cartography incorporated themes of objectivity, science and the communication of a message to a map reader in the most effective and efficient way possible. A growing post-war concern for the needs of map users and the unimpeded communication of cartographic information was advocated most notably by Robinson [35] and Koláčný [30]. Drawing on principles of cognitive science, cartographic communication models supported the need for an effective 'cartographic language' to be employed when designing maps—a language intelligible to the map reader with the primary purpose being to 'get across a concept or relationship' [35: 13]. The development and adoption of cartographic communication models was not a process which took place exclusively outside of the USSR. The work of the Soviet academic cartographer, Konstantin Alekseevich Salishchev, challenged the early-twentieth-century notion that cartography exclusively incorporated elements of cartographic production and advocated a broader definition of the subject which included all users of maps in addition. While Salishchev's [38: 85] own definition of cartography maintains a representational stance which sees cartographic symbols as means of representing aspects of reality, Salishchev's definition extends beyond those of his Soviet contemporaries in that it incorporates entities beyond geographical maps to spatial models more broadly. However, Salishchev also criticised North American cartographic communication models for placing too much emphasis on the map itself, rather than its geographical content [31: 294]. However, the above quote from the opening article in the 1978 manual for the compilation of Soviet military city plans supports the notion that Robinson's view was adopted, or at least expressed, by the General Staff as it undertook its unprecedentedly comprehensive global city mapping programme. Soviet cartographers were instructed to portray locations 'reliably and accurately' while being 'clear and legible' [21: article 2]. In the eyes of the Soviet cartographer,

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there existed a 'true' landscape, ready to be represented as rigorously and precisely as possible, using the foremost technology of the time. Reference to 'detailed study' and 'accurate measurements and assessments' suggests an objective and scientific approach. While this may have been done with a specific purpose in mind for the maps, today, in the absence of this original purpose, the maps continue to find new life in very different contexts and applications. This chapter traces the major paradigm shifts which have taken place in cartography since the time of the Soviet mapping programme and, drawing notably on the work of the French post-structuralist Jacques Derrida, attempts to reframe Soviet maps in a post-representational epistemology which explains the endurance of the maps in contemporary applications while considering the nature of mapping from a broader, conceptual perspective.

3.1 Fundamentals of Harleian Deconstruction

3.1.1 Background

While it has long been recognised that maps of a more thematic nature are able to be used as persuasive tools (e.g. Ager [1]; Tyner [39]) and express something of the culture that produced them [2], the first attempt to move away from a 'map as truth' approach to topographic maps did not materialise until the mid-1980s when Wood and Fels [42] made the first tentative steps towards linking cartography with semiotics. Identifying maps as simultaneously a series of signs and a singular sign as a whole, Wood and Fels facilitated a vision of cartography, not as an endeavour towards *the* optimal map in the communication of a particular message, but as a connotation-imbued text, unavoidably immersed in its social, cultural and political contexts. This conception paved the way for Brian Harley's seminal 1989 publication 'Deconstructing the map' [26] (updated in 1992 [27]), which was the first to theorise the notion of maps as social constructions. Believing that cartographers adopted a 'map as truth' stance in order to remain credible, Harley surmised 'it is better for us to begin from the premise that cartography is seldom what cartographers say it is' [26: 1]. Harley's paradigm, subsequently styled 'critical cartography', contested the view that an objective and accurate representation of a geographical space could be achieved, arguing that how a map represents a space is influenced by the social and political contexts of its production. Harley's argument is divided into three sections: 'The Rules of Cartography', 'Deconstruction and the Cartographic Text' and 'Maps and the Exercise of Power'. Before engaging fully with Harley's assertions, it is necessary to refer the writings in which these concepts are rooted.

The first and third sections owe much to Michel Foucault; in particular, his well-known expositions of the relations between knowledge and power. The second is underpinned, at least nominally, by the work of Jacques Derrida, the originator of the post-structuralist movement of deconstruction more than 20 years prior to Harley's inaugural application of the concept to cartography. Reference should also be made

to the interpretations of Foucault and Derrida by Rouse [36] and Norris [32] respectively, which are adopted and cited by Harley. While deconstruction does not lend itself to being adequately summarised, the opening section of this chapter interprets some key elements of Foucault's and Derrida's writings from some of the major texts of each in relation to these arguments, interspersed by summaries of Harley's stance on each in the context of cartography.

3.1.2 Fundamentals of Knowledge

Rouse [36: 2] defines knowledge as an 'accurate representation whose accuracy is recognized and justified by the knower.' Foucault is well known for his linking of the concepts of knowledge and power, although Rouse highlights that these two concepts remain independent and distinct of one another, despite these linkages. Recognising that science is the 'most successful means' we have of representing the world and how it operates (ibid.: 3), Rouse begins his discussion of knowledge by outlining the major criticisms of science-centric empiricist philosophy. Firstly, he notes that scientists make observations selectively, influenced and governed by their theoretical and practical interests. Secondly, he stresses the complexity of scientific observation, along with the fact that it depends on numerous prior determinations and pre-existing assumptions that certain 'facts' are indisputably true. Thirdly, related to the second criticism, Rouse states that theory cannot be directly compared with observations; we must describe observations in some way first, before comparing our theories with these descriptions. In summary, these criticisms together mean that the world and its processes operate independently of any representations of them, leading to the inherent possibility that our representations may depict the world inaccurately (ibid.: 3).

3.1.3 'The Rules of Cartography'

Harley's [26] first argument is that cartography is governed by a system of rules. The basis for this is Foucault's establishment of discourse as the primary unit of analysis. The concepts of rules and discourse are linked by the claim that where there are rules which govern the making and assessing of statements, there is discourse. Rather than claiming that such rules are universal, Harley emphasises their society-specific nature. Within European cartography since the seventeenth century, two groups of rules are identified, technical rules governing map production and the rules relating to the cultural context of a map's production. The former includes the perceived objectivity of Western maps, which leads to the denigration of maps of the past, or those produced using more primitive or anachronistic technologies. The latter incorporates matters such as ethnocentricity (e.g. placing Europe at the centre of a world map, or orientating maps towards particular religious sites) and rules of social

order (i.e. social hierarchies are reflected in the map's visual hierarchy, with more powerful features given more prominence). Harley's principal argument here is that maps not only reflect and reinforce these social conditions, but are instrumental in defining them.

3.2 Foundations of Deconstruction

3.2.1 Spotting the Différance

Derrida challenges the traditional philosophical, or metaphysical, idea that the formation or origin of a concept, or 'logos', is independent of language which, according to this 'logocentric' concept is merely a means of expressing a logos. Derrida's position is that language and concepts are intrinsically interdependent; each being vital to the construction of the other [18]. In elucidating this, Derrida deconstructs this premise of metaphysics by dismantling the traditional methods by which philosophers have organised the origins of concepts or ideas and how these have been construed as having a pure and original meaning independent of their expression through language (ibid.; Norris [32: 19]). Essentially, Derrida's work can be read as an argument that the concept of a 'logos' is a metaphor referred to by metaphysicists in order to express abstract concepts. However, this argument in itself is problematic in the sense that, as Derrida [14: 6] asks, 'how can we make this discernible, except by metaphor?'.

Central to Derrida's concept of deconstruction is his neographism, *différance*. This 'assemblage' is designed to encapsulate both the concept of 'differing', in the sense of possessing characteristics which vary from that of another, and 'deferring', the temporal and conceptual spacing which dislocates one thing from another [13: 278]. *Différance* in the Derridean sense advocates a movement away from the structuralist conception that the identity of all things is either intrinsic or relational, or some combination of the two. In this paradigm, an intrinsic view of identity may be one which relies on particular distinguishing features. Were something not to possess such features, it would cease to maintain its identity [23: 60]. Indeed, the very concept of existence is dependent on the maintenance of an identity, which allows something to be both extant and recognised. However, the maintenance of such an identity often transcends that which is in question, incorporating external factors too, namely the positioning of something within a wider structure, relative to others (ibid.: 61).

Derrida's writings take this relational concept further than can be contained by this neat, structuralist framework, endorsed notably by Ferdinand Mongin de Saussure (ibid.: 63). He challenges the pre-existing philosophical elucidation that signs (explained by Derrida using the example of language, but applicable to any form of sign which signifies some 'other') can be distinguished through either sensibility (i.e. directly via the human senses) or intelligibility (i.e. via information presented directly to the mind) [13: 281]. Both of these concepts hang on the premise that the

information necessary to discriminate the identities of signs is fully in the present—available in some way directly from the sign itself. Using the analogy of audible speech, Derrida rejects this premise on both counts. If speech is to be meaningfully understood, he argues, the receiver must be able to discriminate between different signs, or different units of the sound, according to a given language. Such difference between signs is not an audible sound in itself and therefore cannot be sensed—discrediting the idea that the distinguishing of signs can take place via sensibility [23: 58]. Derrida affirms that this distinction does not take place via understanding either, as no information is being presented to the mind, in the present, which allows such a distinction of signs to be made (ibid.: 59).

It is this inability to distinguish signs fully in the present which leads Derrida to introduce the concept of deferral; 'to put off until "later" what is presently denied' [13: 278]. The differences which give signs their identities are not inherent in them or, as Derrida asserts, 'they have not fallen from the sky ready made' (ibid.: 286). Therefore, *différance* expresses the movement which takes place as referral is made between different signs; a movement through which differences find their distinctions (ibid.: 287). These signs, according to the structuralist conception of presence, are fundamentally not present [12: 166] and can therefore be termed historical:

> …we shall designate by the term différance the movement by which language, or any code, any system of reference in general, becomes 'historically' constituted as a fabric of differences. [13: 287]

The major consequence of accepting *différance*, as defined here by Derrida, is that a 'system of reference' in itself is not an adequate means of explaining the identification of signs, as it is the movement of deferral which gives them meaning, not the code itself. Codes and languages are themselves governed by rules and conventions, which in turn must also be subject to *différance* if they are to hold meaning, and so on ad infinitum. This unending, paradoxical loop makes impossible the establishment of a definitive genesis of meaning (or 'logos'), as the movement—*différance*—which is defining identities is a continuous phenomenon [23: 64]. It also leads us to conclude that the structuralist logic of meaning being extant in the present—within a text—no longer prevails (ibid.: 68). The unending nature of this movement also discredits any notion that any kind of finite polysemia or multiplicity of meaning is at play. The contexts and spaces across which a sign can be deferred are countless, rather than fixed and finite (ibid.: 26). In order to fully deconstruct a sign, we need to distinguish and separate the signifier (be it graphical or audible) from its signifying concept and referent [3, 12].

3.2.2 *Absolute Absence*

Just as *différance* challenges the notion of the meaning of signs inhabiting the present, it also challenges the classical philosophical conception of the term 'writing', which relies on the assumption that such a text is used when communication is necessary

to a recipient (or recipients) who is distant, but still present in the sense that they are being communicated with [23: 69]. Derrida attempts to push the boundaries of this concept by asking whether it extends to the absolute absence of either the author or intended receiver of the writing—i.e. if either, or both, were to die. Derrida argues that a fundamental characteristic of writing is its ability to function beyond the death of (or in the total absence of) its author or intended receiver. It must be iterable, or able to be stated again, more than once and independent of the sender or receiver (ibid.: 70):

> For a writing to be a writing it must continue to 'act' and to be readable even when what is called the author of the writing no longer answers for what he has written. [15: 8]

Therefore, if we accept iterability as a fundamental element of 'writing' (or, more broadly, the expression of any sign), all 'writing', in this broad Derridean sense, can only incorporate that which can do without the presence of the author, just as a reader of anything 'written' can read that which the author could write in the absence of the intended reader [23: 71]. Derrida [16] illustrates this using the analogy of a postcard, which can be read and understood by someone other than the writer or intended receiver, while still being inherently linked to its producer, meaning and receiver—despite all three being absent [5]. Together with *différance*, this conception that iterability is fundamental to all 'writing' forms a central element of Derrida's effort to challenge the structuralist (or metaphysical) construal of 'presence' in relation to any form of sign [23: 77].

3.3 'Deconstruction and the Cartographic Text'

Harley begins his discussion of deconstruction by advocating the treating of maps as texts, particularly against a backdrop of treating maps as objective reflections of a reality. Rather than a technical process of communication, Harley's premise is one which recognises 'the narrative qualities of cartographic representation' [26: 8]. Not only does this discredit the neutrality of maps by focussing on their inherently constructed nature, it does so by using the Derridean concept of metaphor. Harley's first illustration of metaphor in maps serves to illustrate to role of the 'margins' of the text; that which has not been historically considered part of the map itself but rather an addendum to the main cartographic component. The example given is that of decorative art and cartouches in seventeenth and eighteenth century European maps which, although not part of the cartographic element per se, reveal much about the culture from which the text originated.

Harley proceeds beyond the margins of the map to suggest that the map itself—namely the employment of a visual hierarchy and the selection of important elements for inclusion in a state highway map—makes similar revelations which renders the communication of the map to its reader more complex than a simple depiction of a reality. He clarifies 'I am not suggesting these elements hinder the traveller from

getting from point A to B, but that there is *a second text* within the map' with additional functions such as an instrument of sovereignty or a constructor of a mythical geography of a place (ibid.: 9, emphasis added). It is the existence of this second text which introduces Harley's first example of a cartographic metaphor. Harley argues that 'a cartographer' would argue that these secondary functions can only exist because of their difference from 'the ultimate scientific map' from which the map in question derives (ibid.: 10). Harley argues that, through this, science has become a metaphor for an authority to which maps refer, just as a European renaissance map may use a coat of arms as a metaphor for its royal authority. Although rhetoric may be a technique most associated with clearly partisan maps, such as advertisement or propaganda maps, Harley adopts a broader definition of the term, incorporating all subjective elements of map production. On this basis, he argues for the universality of rhetoric in maps, contending that:

> The steps in making a map – selection, omission, simplification, classification, the creation on hierarchies, and "symbolization" – are all inherently rhetorical. In their intentions as much as their applications they signify subjective human purposes rather than reciprocating the workings of some "fundamental law of cartographic generalization". [26: 11]

Far from being an inconsequential detail of map production, Harley maintains that this universality of rhetoric and subjectivity can be manipulated by cartographers to communicate the most desirable metaphor to the map reader—perhaps his most fundamental claim in 'Deconstructing the Map'.

3.3.1 Power and Governmentality

Rouse [36] elucidates three principal relations between knowledge and power. The first comprises the notion that knowledge can be applied in order to achieve power. More specifically, knowledge of how things operate affords the bearer of the knowledge opportunities to manipulate and control those not in possession of such knowledge. The second relation is that power can be used to prevent the acquisition of knowledge by others, or to distort the knowledge that is acquired. False knowledge or beliefs may be promulgated by the power-bearer and given credibility, while simultaneously discrediting or suppressing true beliefs, or knowledge (ibid.: 13). The third relation is approached more cautiously by Rouse, who suggests that it could be treated as part of the first relation. However, rather than using knowledge to exercise or achieve power, the third relation indicates scope for knowledge to be used as a means of liberation from oppressive power. Accurate knowledge may be used as a tool with which to identify the distortions and augmentations of any false knowledge, which has been used to propagate power (ibid.: 13).

In Foucault's writings, the art of government, or 'governmentality', is an important vehicle for expressing these manifestations of power and knowledge, operating in the same way as knowledge and power can be utilised between individuals. Foucault [20: 207] surmises that governing a state essentially entails 'exercising toward its

inhabitants, and the wealth and behaviour of each and all, a form of surveillance and control as attentive as that of the head of a family over his household and goods.' In this summary, surveillance appears to be synonymous with power, a synonym which leads Foucault to write at length about juridical power. Seeing systems of crime and punishment as important to the ways in which particular societies define 'subjectivity, forms of knowledge, and, consequently, relations between man and truth' [19: 4], Foucault discusses penal systems at length within his writings on power.

3.4 'Maps and the Exercise of Power'

In Harley's reading of knowledge-power relations, maps are clearly seen as an instrument of power, particularly state-produced maps, which 'extend and reinforce the legal statuses, territorial imperative, and values stemming from the exercise of political power' [26: 12]. However, rather than viewing maps as part of a simple binary model of 'domination and subversion', Harley distinguishes between two types of power possessed by maps—internal and external power (ibid.: 12). This stance represents a development of Harley's [24] chapter 'Maps, Knowledge and Power', in which he first links maps to power and highlights their compatibility with Foucault's conception of surveillance. It was also in this chapter that Harley first referred to a 'deeper' or 'symbolic' level within a map, beyond its literal meaning, which contains the rhetorical and persuasive—and powerful—components of the map.

External power is that which is exerted on or by cartography. Maps tend to be produced to meet the needs of a particular patron or cause. Moreover, some maps are specifically tasked with defining or maintaining elements of state power, which are external to the map, such as boundaries, commerce or the control of population. Harley sees this external power as representative of Foucault's juridical power, as it facilitates a degree of surveillance and control.

Conversely, internal power is that which is inherent in the map itself, in the same way that any other form of text can hold power. Harley describes a process by which the world is 'catalogued' through generalisation, classification, abstraction and the other processes which are definitive of mapping. Such power is therefore held by cartographers themselves [40: 192]. Furthermore, he advocates that 'to catalogue the world is to appropriate it, so that all these technical processes represent acts of control over its image which extend beyond the professed use of cartography' [24: 13]. Citing several examples, Harley uses this premise to indicate that maps represent knowledge with power as they shape and alter people's perception of real landscapes, through their context, inclusions and exclusions. Rarely is this more the case than when the map in question assumes a stance of objectivity or neutrality. 'Where it seems to be neutral it is the sly "rhetoric of neutrality" that is trying to persuade us' (ibid.: 14).

3.4.1 Politicising the Map

In elucidating the fundamental theses of the Harleian paradigm, interspersed with notable standpoints of Jacques Derrida and Michel Foucault, several issues have become clear. Firstly, despite describing the ideas in 'Deconstructing the map' as 'ow[ing] most to writings by Foucault and Derrida' [26: 2], Harley directly cites the work of neither in his 1989 essay, instead relying solely on secondary texts (e.g. Crampton [9]; Norris [32]). Harley does cite a translator's preface to Derrida's 'Of Grammatology' but stops short of scrutinising the work itself. This is less the case with regard to the work of Foucault, as Harley more overtly embraces power-knowledge discourses, particularly in 'Maps and the Exercise of Power'.

The 1992 revision illuminates Harley's interpretation of deconstruction a little more. 'Of Grammatology' itself is cited but only as a source of 'the notion of deconstruction' [27: 232]. Although this notion undoubtedly finds its roots in the work of Derrida, beyond embracing the general essence of the term, Harley does not mention or allude to logos, *différance*, absolute absence or any other specific element of Derridean deconstruction. Harley does describe using 'a deconstructionist tactic to break the assumed link between reality and representation which has dominated cartographic thinking' (ibid.: 232); a statement which characterises Harley's effort to depart from the communication-centric 'map as truth' paradigm. He also acknowledges that the ideas of Foucault and Derrida are not always congruent, describing his approach as 'deliberately eclectic' (ibid.: 232). Harley also attributes the idea of the textuality and rhetorical nature of maps to Derrida, while vocalising disagreement with an uncited Derridean view that 'nothing lies outside the text' (ibid.: 233). This statement itself is a misinterpretation, addressed by Derrida in 1988:

> The phrase which for some has become a sort of slogan, in general so badly understood, of deconstruction ("there is nothing outside the text" [it n'y a pas de hors-texte]), means nothing else: there is nothing outside context. In this form, which says exactly the same thing, the formula would doubtless have been less shocking… To the extent to which it – by virtue of its discourse, its socio-institutional situation, its language, the historical inscription of its gestures, etc. – is itself rooted in a given context (but, as always, in one that is differentiated and mobile), it does not renounce (it neither can nor ought do so) the "values" that are dominant in this context (for example, that of truth, etc.). [17: 136–137]

It seems, therefore, that Harley's notion of maps being constructed within a socio-cultural context has more in common with Derrida than he perhaps realised. This misunderstanding has arisen due to Derrida's view of these contexts and values as so fundamental to text (as in, the signifier) that he saw it as an integral part of the term 'text', using the word in reference to this broader meaning. Rundstrom [37] avoided such terminological confusion by using the term 'artefact' to describe the physical map, rather than 'text', framing this within the context of both the map production process and cultural and political setting. Nonetheless, other elements of Harley's work, which are presented as originating from Derrida's ideas, diverge from the latter on some fundamental grounds. Harley refers to deconstruction as aiming at 'as many meanings as possible' and as 'a search for alternative meanings' (1992: 239). These statements suggest a misunderstanding of *différance* by suggesting a finite

and quantifiable number of possible meanings, which a text (map) can in some way possess; rather than an ongoing deferral of meaning which reaches no fixed logos, or point of origin. An acceptance of cartographic polysemia by Harley by definition indicates a tacit acceptance that these multiple but fixed meanings are present on the map itself—rofoundly opposing the Derridean assertion that meaning does not belong to either sensibility or intelligibility and therefore cannot be present in the text [13: 281].

Crampton [9] notes Harley's general lack of engagement with primary texts and promotes a two-fold development of the paradigm in response. Firstly, Crampton contrasts Harley's conception of knowledge-power with Foucault's before discussing issues of power in cartography with more direct linkages to the work of the latter. Secondly, he endorses the examination of the field of 'geographic visualisation' (GVis) (which facilitates more interactivity and data exploration than a traditional map) as an effective and more contemporary means of moving away from the 'map as truth' communication model, which strives toward an optimal, single and static map. In the first of these developments, Crampton challenges the notion of a unitary 'author' of a map and that power can be divided into a binary, external and internal, system. He also notes Harley's seemingly negative view of power and surveillance and, supported by Foucault, highlights the possibility of resisting power. After addressing these issues with direct reference to Foucault, Crampton necessitates the need to move beyond Harley if the conception of maps as social constructions is to be fully explored. The fact that Crampton proceeds to undertake this by formulating a 'Harleian research agenda' (ibid.: 242) indicates his general support of the notion of 'maps as social constructions'. However, despite addressing some of Harley's discrepancies with the writings of Foucault, Crampton gives no such treatment to any of the issues relating to Derridean deconstruction. Furthermore, Crampton appears to directly support Harley's contradiction of Derridean *différance* by advocating a polysemic interpretation of maps:

> By contrast to the communication model which identifies a single optimal map… in a Harleian agenda, polysemy and multiplicity are preferred. [9: 244]

The subsequent discussion of GVis simply serves to highlight how the new spatial technologies of the time increased the multiplicity of meanings which could be extracted from a map by increasing user interactivity and abandoning the static nature of traditional maps in favour of 'data exploration' (ibid.: 245). While the emergence of digital technologies has undoubtedly transformed the nature and scope of cartographic texts, this technological development does nothing to escape from the notion that possible meanings of maps are not only fixed (albeit numerous) but present in the map or visualisation itself.

3.5 Beyond the Landscape

Perhaps the most thorough critique of Harley is found in 'Images of Power' by Belyea [3]. Belyea notes that Harley's engagement with Foucault and Derrida is 'derivative and highly selective' (ibid.: 1) before using some untranslated excerpts from both in order to identify several conflicts between them and Harleian deconstruction. Some of these conflicts are fundamental enough for Belyea to argue that Harley's stance has not moved on from the 'maps as images of the world' epistemology which predates his work, but rather that he simply adds a social-political dimension to this traditional position.

Belyea begins by challenging Harley's concept of a 'symbolic' level in maps, arguing that this cannot constitute deconstruction, given that the role of a symbol is to refer to 'something else' outside of the text; an issue which also applies to Casti's [7] support of maps as a means of iconizing the landscape. Belyea also contests Harley's distinction between internal and external power, for which she finds no justification in the work of either Foucault or Derrida. Whereas Harley's two-fold approach theorises means by which cartography can utilise power, Foucault's argument, as Belyea perceives it, is that power is an inherent and inseparable element of any discourse, including cartographic discourse, rendering Harley's interpretation inaccurate [3: 3]. Finally, Belyea recognises that Harley does little to elucidate what he sees as vital to Derridean deconstruction, beyond references to identifying the 'rhetorical' elements in maps (as opposed to 'scientific' elements). If signs do not point to the referent but instead refer to other signs, any language or system of signifiers does not directly represent pure thought or nature but functions by 'establishing and adjusting purely arbitrary relationships within each system' (ibid.: 4). In adopting this position, Belyea supports the concept of *différance*, albeit without using its name.

Although Casti [7] supports Harley's view that the meaning of a map is not entirely self-contained, she departs from Harley in arguing that cartographic semiosis cannot be separated from the semiotic study of the landscape represented by the map. Based on this premise, Casti envisages maps as an agent at work between territory and society—with social actions on territory being shaped by the representation on the map. This moves away from the Harleian tendency to clearly distinguish between map and landscape, in an effort to move away from a 'map as mirror of reality' mentality. However, Casti does not support the notion of maps as a simple signifier of landscape but acknowledges a 'second-level' semiosis, through which codes other than the landscape are referenced, such as the map itself and socio-cultural and political agendas, especially through iconization and the use of toponyms. Nevertheless, even at this secondary level, Casti's approach fails to evade an inherent linking of the map and the landscape, even if this is to a lesser degree than as a 'mirror of reality', causing friction with the work of Derrida. However, Casti does note the ability of a map to self-reference in order to be recognised as a map and, through this, it is able to communicate messages beyond those which were specifically envisioned by the cartographer (ibid.: 10). Casti's work therefore opens up new possibilities for

cartographic epistemology; namely that a map may refer to entities other than the landscape (including itself), albeit while acting as an agent connected with reality in order to facilitate work in the world.

Contrastingly, Belyea [3] contends that Harley subscribes to the concept of signs referring directly to nature (or, more specifically, maps mirroring reality)—the very notion which Harley set out to escape from. In supporting this claim, Belyea cites the example of Harley's paper on 'Silences and Secrecy' in early modern European cartography [25], in which he notes that European maps of North America 'remain silent about the true America' (ibid.: 70), indicating that the socio-political agenda of European settlers prevented the production of an accurate and 'true' map. Although Harley was among the first to consider this non-scientific agenda in cartography, Belyea uses this example to claim that the 'map as mirror of reality' concept remains intact beneath the façade of a new approach. Harley's work appears to be built upon the premise that maps are rhetorical and culturally immersed representations of the world. However, as Belyea [3: 4] points out, if signs merely point to other signs, as Derrida suggests, in what sense is a map a representation at all?

3.6 Escaping an Ontology of Maps: Towards Post-Representational Cartography

All of the epistemological models of cartography discussed so far in this chapter have dealt purely with ontic knowledge; that which falls within an assumed knowledge of how a map operates, rather than questioning the operation of maps in itself. Beneath all of the agendas and qualities attributed to cartography by the above authors is a tacit acceptance of the notion that maps can accurately depict the landscape [35], albeit that this depiction can reveal ideology and rhetoric [9, 26] and perhaps refer to itself in addition to reality [7]. Crampton [10] argues that the way in which maps are viewed can reach a much more fundamental and conceptual level than this, dealing not with existing maps and their use, but asking ontological questions about the very being of maps in themselves. To this end, he echoes Belyea [4] in supporting a non-progressivist history of cartography in which modern maps are not viewed as inherently superior to earlier maps because they more accurately mirror the world but rather that they are simply different. Moreover, Crampton [10] notes that the work that a map does in the world evolves over time and space, the context of a map's interpretation being of similar importance to that of its creation.

Pickles [34] makes similar observations and also supports a shift in focus from what maps *are* to what they *do*. In making this claim, Pickles refers to maps as 'inscriptions'—not static representations but instead items which code the world, shape our understanding of it and allow us to carry out work in the world. Some of these arguments echo those of Casti [7] but with less emphasis on the semiotic

functions of maps, which fit more comfortably into a conception of maps as representations. Pickles [34] uses this 'map as inscription' approach as a means of abandoning the long-established ontic approach to cartography:

> All texts are… embedded within chains of signification: meaning is dialogic, polyphonic and multivocal – open to, and demanding of us, a process of ceaseless contextualization and recontextualization. Intertextuality, in this sense, cannot be fused with positivist or more broadly empiricist epistemologies, but requires a thoroughly different understanding of epistemology – a rejection of the univocity of texts (and images), of representation as a mirror of nature, and of metaphysics of presence (and the foundational claims of positivism) to ground itself unproblematically in the given real world or the immediacy of observation. [34: 174]

Here, Pickles sees the importance of incorporating context of observation into the reading of maps; recognising maps as producers of the world and our understanding of it, rather than mirrors of it [34: 146]. However, despite the efforts of Crampton [10] and Pickles [34] to establish a post-representational cartographic discourse, Kitchin and Dodge [28] argue that even these two authors fail to escape the ontic limits of traditional cartography and still view maps as representations of space. In justifying this, they elucidate that it is possible for maps to be 'multivocal' and influential in the world and our understandings of it while still being a stable representation of spatial patterns. In this sense, Kitchin and Dodge [28] argue that Crampton [10] and Pickles [34] add yet more complexity to ontologically stable cartographic discourse but fall short of breaking free from it.

In response, Kitchin and Dodge [28] support an ontogenetic view of maps, maps as a process of continual development and maturing. Although this process naturally begins with various processes which bring a map into being (including technical, social and political components), this ontogenetic stance sees this merely as the starting point for a map, where more traditional perspectives see it as the map's 'completion'. Beyond the production of the map, Kitchin and Dodge [28] endorse Pickles' [34] emphasis on recontextualization and argue that maps are 'remade every time they are engaged with' [28: 335]. In contrast to both Crampton and Pickles, this approach sees 'maps as practices' rather than static representations that happen to be at work in the world. Consequently, a truly post-representational epistemology sees continual engagement with maps in new temporal and spatial contexts as a fundamental element of the map itself—without this continual engagement, and remaking of the map each time in its new context, the map is 'simply coloured ink on a page' (ibid.: 335). Only when the concept of 'mapping' is read to incorporate continual engagement and re-engagement of this 'ink on a page' in new contexts for new purposes can the ontological security of a map be finally discarded. Mapping is therefore a process which is never complete—it is always emerging and becoming, never reaching an end point at which it becomes static.

Kitchin and Dodge [28] proceed to argue that this newly-conceived notion of 'mapping' encompasses processes of 'transduction'. Each time a map is re-engaged with, previous engagements can be drawn upon. A reading of a map need not take place in total ignorance of all past readings of a map, but these may rather be used as a starting point for further modulation or development of the map. This concept

fits naturally into traditional notions of 'map-making', in which particular types of features may be added in sequence, each one in relation to the previous one. Kitchin and Dodge [28] see this process continuing into the traditional realm of 'map use', which, in the post-representational sense, is a continuation of the mapping process. Work done with the map in the world builds upon work that has been done in the past. In this way, transduction allows the map to mutate and facilitates its 're-making' in new contexts. As a result, the binaries which have long defined cartography—map maker/map user and subject/object—are no longer operative in the same way [11, 22].

3.6.1 Illustrating Maps as Practices

In a later summary of this new paradigm, Kitchin et al. [29] explain that as well as doing work in the world, maps may also be worked upon by the world, both during and after the practices that initially brought them into being. Such work may include vectorising, scanning, generalising, the use of a map for the compilation of another, or even the simple folding or rolling of a paper map. These practices have no place in a conventional view of a map representing the world, yet they each influence the ways in which a map is engaged with in new contexts and can therefore be considered 'mapping' in this broader sense. In illustrating this, Kitchin et al. [29] refer to earlier work by Corner [8] which began to undermine the 'maps as representations' ontology by separating maps from territory and, in doing so, removing the need for one to precede the other. Indeed, given that man-made environments, such as cities, are designed and constructed using maps and plans, either as a complete new town (see Fig. 3.1) or site by site, reality in these situations can be more accurately viewed as representations of the map (Corner [8] in Kitchin et al. [29]). This, Kitchin et al. [29: 18] argue, highlights how 'maps and territories are co-constructed'.

Del Casino and Hanna [11] moved beyond Corner's illustration of the physical production of a place to explain how visitors to a town can contribute to its production in more abstract senses, as their use of a tourist map shapes and influences their actions and interactions with the town. Despite still referring to maps as representations, Del Casino and Hanna's illustration highlights how the work of the tourist map is never complete. As tourists continue to engage with the map, they contribute to the nature of the town and contribute to the nature of the map. As a result of this process, the distinction between the author and the reader of the map becomes blurred.

> What we want to suggest is that representations are not simply visual objects ripe for deconstruction. Representations, maps included, are tactile, olfactory, sensed objects/subjects mediated by the multiplicity of knowledges we bring to and take from them through our everyday interactions and representational and discursive practices. [11: 37]

Applying Kitchin and Dodge's [28] post-representational approach to this analogy, a tourist map only becomes a map when it is engaged with as such (read, recognised and interpreted). Crucially, Kitchin et al. [29: 21] highlight that it is these practices, which have been 'learned and constantly reaffirmed', which have given

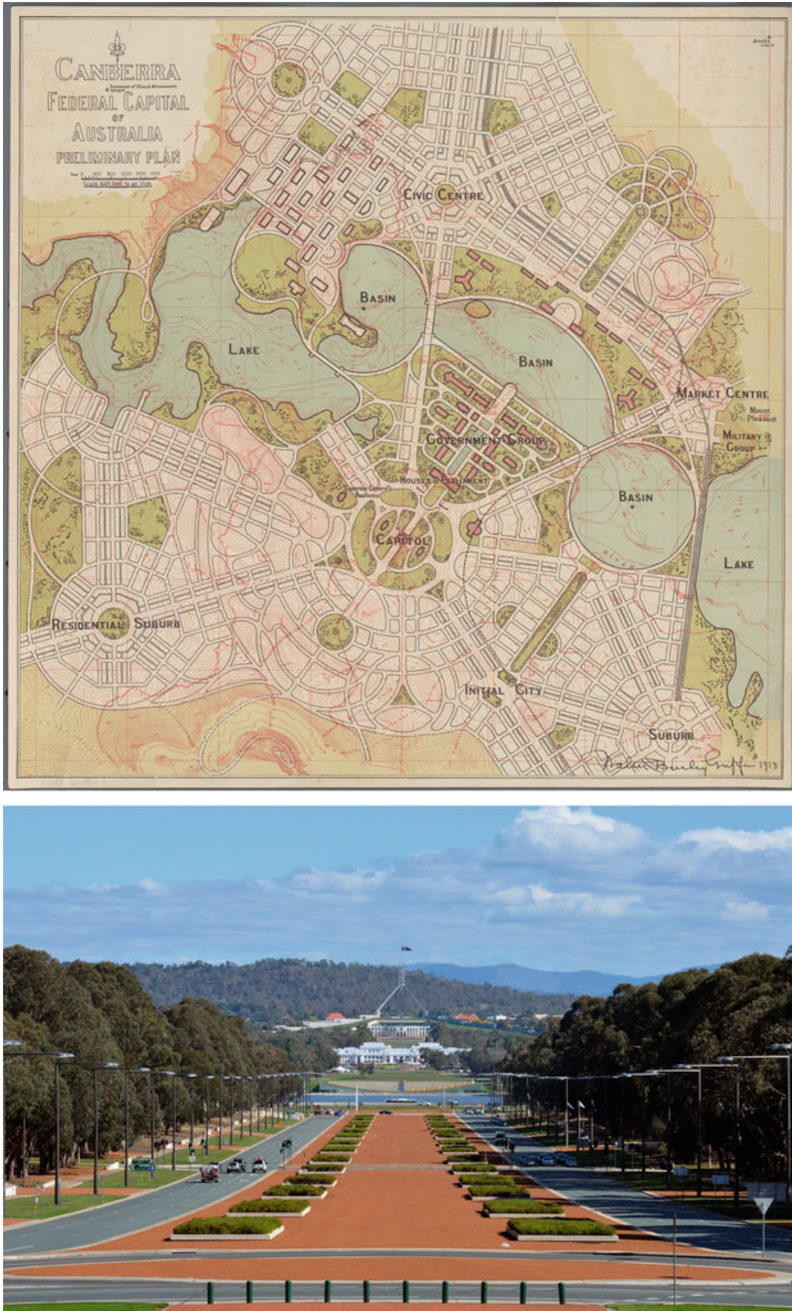

Fig. 3.1 Which is the representation? Walter Burley Griffin's (1913) competition-winning design for the layout of Parliament House and Capitol Hill, Canberra, Australia (top) (National Library of Australia, nla.obj-230041959) and a view of Old Parliament House, Canberra, Australia completed in 1927—pictured in 2017 (bottom)

maps their long-standing perceived status as representations. In other words, the coloured ink on the page only becomes a map when an individual brings their own knowledge of how to engage with it and implements these practices accordingly. Because this takes place at the level of the individual, the knowledge and ability to apply various map-related skills will vary each time the map is engaged with and applied in the world by different people, affirming the conclusion that the map cannot possibly be a static representation which operates independently of the map viewer.

3.6.2 Deconstructing the Ontogenetic Map: Revisiting Derrida

After departing from an ontologically secure conception of mapping (i.e. one which remained within a 'map as representation' framework) in favour of a post-representational view, it is argued here that there remains scope to further scrutinise the nature of maps by drawing on the work of Jacques Derrida in relation to the metaphysics of presence. While Harley's problematic application of Derridean deconstruction has already been recounted, two particular components of Derrida's work, which have not previously been applied directly to cartography, can aid our understanding of maps as ontogenetic processes, rather than the rhetorical representations described by Harley. The following section summarises these components, illustrating them in the context of the Soviet military city plan programme.

Although the concept of *différance* has not been directly cited in the exploratory literature on post-representational cartography, the two concepts appear to be mutually compatible in several respects. Firstly, the two agree that, as meaning is not extant in the present (neither by sensibility or intelligibility; Derrida [13: 281]), the map has no meaning in itself. Just as a Derridean construal of the meaning of any language would contend that a system of signs is merely arbitrary graphics or sounds until an interpreter attributes meaning to them, Kitchin and Dodge [28] similarly dismiss a 'map' as ink on a page, until such a time as it is engaged with as a map (by being read and interpreted etc.). Working from this premise that the map has no meaning present to itself, but yet it has proven an invaluable tool for communication and interpretation throughout the history of civilisation, we are led to conclude that any meaning which can be gleaned 'from the map' is rather deferred to the interpreter of the map. The interpreter of a map is forced to 'put off until "later" what is presently denied' [13: 278] in order to distinguish a sign from another which is in some way different. The map reader brings to the map their culturally prescribed knowledge of how to interpret and understand a map, their knowledge of any conventional signs used on the map as well as their broader knowledge of the features of the place which the map purports to represent. It is through this final element of knowledge that a map interpreter links the map to a reality—a reality to which the map itself is not inherently linked. Similarly, a map interpreter's knowledge of the conventional signs on a map is akin to a reader of literature's familiarity with the language in which a

particular text is written; although a map is no more required to use all symbols in a symbology than a text is required to use all words in a dictionary.

On a Soviet plan of a foreign city, this deferral of meaning takes place regardless of the toponyms on the map. An individual attempting to interpret such a plan with no knowledge of the Cyrillic alphabet or Soviet conventional signs may yet glean meaning from the map by bringing to it their culturally ingrained understanding of what a map 'should look like'. They may, for instance, recognise blue areas as water or green as an area of vegetation, as dictated by cartographic convention. They may recognise bold orange lines as major roads, not because they have learnt that the Soviet conventional sign for a major road is orange, but because they have learned to interpret a linear feature, prominent in the map's visual hierarchy, as a road—with greater visual prominence reserved for those of greater importance. The interpreter imbues each component on the map with meaning as they explore and move through the 'fabric of differences' between each conventional sign [13: 287].

The notion that meaning is attained by moving through such a fabric jars against the concept of a legend, which purports to define the meaning of signs found on the map. However, as Glendinning [23] explains, codes and languages (we can view a legend as a code for interpreting a cartographic language) are themselves governed by conventions and, once again, have no meaning in the present, legends also rely on the deferral of meaning to an interpreter. The legend therefore enriches the fabric through which a map interpreter defers and explores the meaning of the map, but does not ascribe a univocal meaning to a sign, any more than a dictionary definition of a word depends on the reader deferring understanding of the defined word to an understanding of each of the words used in the definition.

It should be stressed that *différance* in the context of the map, just as in Derrida's expositions on more conventional languages, does not reach a logos or defined origin of meaning. Whereas a representational view of cartography sees reality (the landscape) as the logos of a map's meaning, this stance is problematised when we consider how a map can be interpreted and understood by an individual with no knowledge of the place which the map purports to represent. Once again, Derrida aids our understanding of this phenomenon. If the reader is not deferring the meaning of the map to reality, nor is meaning present in the map itself, the reader must be assuming meaning from their own 'historically constituted' [13: 287] weave of experience of cartographic language and its culturally endorsed linkages to generic features in reality. This distinction of a specific feature in a real location and a map interpreter's generic (or experiential) understanding of a certain feature type is important in undertaking a deconstruction of a map; not in the Harleian sense of identifying rhetoric, but by perceiving the difference between signifiers (e.g. a conventional sign for a tower), signifying concepts (e.g. a tower) and the referent (e.g. a specific tower in a specific location in reality) [3, 12]. Far from being merely polysemic (as suggested by Harley [26] and Crampton [9]), or limited to a discrete selection, the meanings with which map interpreters grapple in relation to all three of these components are infinite in number. Different individuals in different temporal, spatial and cultural contexts will defer the meaning of all three elements across potentially very distinctive 'fabric[s] of differences', leading to an infinite number of possible directions

in which this movement can take place, which will certainly not arrive at a single logos. Just as the map is remade each time it is engaged with and 'recontextualised' [28, 34], so the meaning that an individual may attribute to a map will be different in different contexts. More generally, the concept of assigning meaning to a map through movement is harmonious with the post-representational notion of a map as a practice, rather than an object. As we conceptually visualise a map in an ontogenetic sense, continually emerging and maturing over time, with each 'recontextualisation' transducing previous engagements with the same map, so too can we imagine an individual's fabric of differences, across which meanings are deferred, being enriched by each encounter they have with mappings and related concepts. In this way, *différance* helps us to understand Kitchin and Dodge's [28] description of transduction as an important process in the mapping and continual remapping which takes place after a map has been brought into being.

Beyond *différance*, Derrida's concept of absolute absence also helps us to ask ontological questions of the map. The concept rests on the basis that writing, in order for it to be considered as such, must still be capable of functioning in the 'absolute absence' of the author or the intended receiver on the map. By absolute absence, we can read the death or total eradication of either party. Understanding the map as a form of writing, and applying this concept accordingly, the concept of simple communication between a cartographer and map reader is undermined. Rather than functioning as a means of information transfer between two parties, the map, for it to be considered as such, must be capable of functioning (i.e. be interpretable) on its own—'even when what is called the author of the [map] no longer answers for what he has written' [15: 8]. In the case of the Soviet programme, this concept can be clearly seen in operation. The author of the maps, the Soviet Union, has been defunct (or 'absolutely absent') since 26th December 1991 when it ceased to exist as an entity. The maps therefore have no author who answers for them, nor can the maps' author ever return to being extant in the same way again. Returning to the quote which began this chapter, summarising the intended function of the maps, we can also conclude that the intended user or recipient of the map is also 'absolutely absent' as, in the absence of the Soviet Union, there can be no 'execution of measures significant for the national economy and for defence' in the way intended here [21]. Similar concepts have been alluded to in a cartographic context in the past, although without specific reference to Derrida. Vujakovic et al. [41], for example, defines 'feral maps' as those which are no longer the controlled entity originally envisaged but function more wildly and uncontrollably in the world.

Nevertheless, it cannot be stated that Soviet mapping is today rendered uninterpretable or without possible purpose, as the continued interest in the maps affirms. Consequently, the iterability of Soviet maps—their capacity to be stated and interpreted again in the absence of their author and intended receiver—has been unequivocally proven. Viewing Soviet maps ontogenetically, we see them not as historical relics which no longer have a function, or as a fixed point in the narrative presented in Chap. 1, but rather as mappings which continue to be remade and recontextualised in settings which would have been unimaginable to their authors. The majority of the cities mapped as part of the Soviet city plan series have never been administered

by a communist regime and therefore most of the maps have never been used for the purpose intended by their authors. It is precisely the inherent iterability of the maps—the capability of them to be remade in new contexts to solve new problems—which explains their enduring appeal, usefulness and applicability to new scenarios in a way that an ontologically secure, representational epistemology cannot.

A model of maps as processually emergent appears to dismantle the binaries which have long defined traditional cartography, as described by Del Casino and Hanna [11] and Gerlach [22]. Nonetheless, the above lacing of Derridean deconstruction with post-representational cartography may initially appear problematic insofar as it still depends on such binaries in order to be explained coherently (e.g. references to map readers and interpreters, as opposed to map authors and creators). However, the stubborn endurance of binaries here can perhaps be explained by their necessity within a cartographic discourse which remains predominantly sited within an ontologically secure construal of the map. Indeed, binaries are the classic structuralist means of establishing the particular conceptions of meaning (what is, and what conversely is not) which *différance* exists to disassemble. As Derrida moves beyond the 'strict and problematic opposition of speech and language' [14: 7], cartographers may move beyond the similarly problematic opposition of map-making and map use, given that the boundary between these activities has been blurred by the acknowledgement of all interactions with maps as 'mapping'. As we abolish the notion of a finite multiplicity of meanings which can be understood by interpreting a map, we also abolish the finite binaries which unjustifiably limit the roles which can be played by various actors who are involved in 'mapping', in the processual sense. Perhaps future discourses in cartography will establish an intelligible means of conveying ontogenetic deconstruction without resorting to using the language of its representational predecessors.

3.7 A Pseudo-Representational Framework

Broadly, this fusion of Derridean deconstruction and post-representational thought leads us to several theoretical implications for the discipline of cartography. Firstly, it affords us an understanding of how maps can be useful in new contexts and times and for new purposes. This perhaps also accounts for the endurance of the field of historical cartography, which continually revisits maps which, by definition, were brought into being in a distant temporal context but can be re-engaged with using new methods, technologies and insights from new perspectives to serve new purposes. Re-engagement with Soviet maps in new contexts and the absence of their author demonstrates this.

The framework also allows us to understand a vital characteristic of the map; that it can allow an interpreter to understand something of the nature and spatial layout of a real-world location, independent of any existing knowledge or experience of that place. This allows, for example, a tourist to familiarise themselves with a city before visiting it, or stakeholders to visualise a new development before it has been brought

into existence. In light of this, we must be careful not to overstate the severance of the link between the map and the reality it purports to represent. This linkage may not be direct in the sense implied by cartographic communication models (or in the metaphor of a map as a mirror) as a real location cannot be present to a map. Nevertheless, the enduring usefulness of maps throughout history serves to demonstrate that a map-reality linkage must exist in some form, if only in the sense that the map allows an interpreter, by referring them to their existing knowledge of signifying concepts, to attain a representative knowledge of a particular space. Therefore, although we may consider a map to be non-representational, the successful functioning of a map must still depend on the map interpreter associating their knowledge of particular signifying concepts with the location with which a map is nominally connected. In this sense, it is not the map which is a representation, but the interpreter's knowledge of a signifying concept which represents a location; the role of the map is to forge the mental connection between signifying concept and referent in reality.

Consequently, the concept of accuracy, which cannot refer to the consistency of a map and a place in a post-representational framework, can more correctly be considered the focus with which cartographic language leads an interpreter to explore the meaning of the signifying concept intended by the map's creator. A topographic map, which nominally aims to be objective, may wish to focus the interpreter's deferral of meaning through a very specific 'fabric of differences' by using a large symbology, with each symbol referring to a very narrow signifying concept. The inherent ability of maps to persuade and to act rhetorically rests on their ability to lead the interpreter's deferral of meaning in a particular direction, desired (or not) by the map's creator.

As a result of understanding the operation of maps in this way, we are led to a practical implication for cartography with regard to map design. The map designer has at their disposal an infinite array of colours, shapes, lines, symbols and other graphical variables, as set out by Bertin [6]. The optimal choice of each of these is that which leads the reader to the 'fabric of differences', within their existing knowledge, which is most closely linked to the signifying concept intended by the designer. In this way, map design enables the cartographer to communicate particular themes.

Post-representation undoubtedly marks a fundamental shift in cartographic theory, although whether its practical implications are as momentous for the discipline is questionable. Maps are enduringly useful in all of their applications because of their perceived link to reality. Even if the direct representational link between map and reality can be severed by new cartographic theory, it is unlikely that this will alter the working practices of cartographers or the actions of map users in any way. To the map user, it matters not if they are referring to a 'mirror of reality' or are deferring meaning to existing knowledge; if the map fulfils the purpose for which the user engaged with it, it has met its objectives. Regardless of whether the map holds meaning present to itself, if map users perceive that they are gleaning useful information 'from the map,' they will continue to engage with it in the same way. Whether this process is called 'map reading' or a continuation of the 'mapping' process is inconsequential for most, if not all, map users.

Although the concepts of absolute absence and re-mapping in new contexts serve to explain the enduring usefulness of Soviet mapping long after the demise of its author and intended application, this usefulness still relies on an understanding of the correspondence between the maps and the locations they purport to represent. Although legends and directories of conventional signs should themselves be considered texts which have no meaning present to themselves (and are therefore also subject to *différance*), they nevertheless aid the illusion of maps representing reality. Legends, in any form, explicitly link symbols to signifying concepts, which in turn are purported to link to a real-world referent when they are placed on a map (despite still referring the user to their existing knowledge of the signifying concept to draw meaning from this). Therefore, in essence, it is the perceived link between map and reality, which accounts for the functionality of the map, rendering the presence of an actual link, or lack thereof, unimportant—a pseudo-representational link is enough. In the use of maps for practical purposes, outside of epistemological discussions, a representational viewpoint is not problematic, although the addition of 'pseudo' to this stance clarifies that this 'representation' is not genuine but rather a façade for the deferral of the meaning of the map's signs to its interpreter, or re-maker. The practical focus of the early advocates of cartographic communication models in the mid-twentieth century perhaps explains the overlooking of this theoretical point at that time. As observed by Pacione [33: 6], 'in terms of real-world problems, post-modern thought would condemn us to inaction while we reflect on the nature of the issue.' Accepting the concept of a pseudo-representational link between maps and landscapes allows the avoidance of this pitfall by providing a framework that can explain the endurance of Soviet maps in the twenty-first century, while retaining the possibility of constructing a methodology for analysing map symbologies which has an applied aspect. Chapter 4 aims to develop such a methodology, which can not only shed further light on the Soviet military city plan series, but also inform elements of future mapping praxes.

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