COMENTARIO INTRODUCTORIO 4

Geo-Epistemology.
Latin America and the Location of Knowledge (2009)

Chapter 3: 'Science and Empire' (pp. 127-168)

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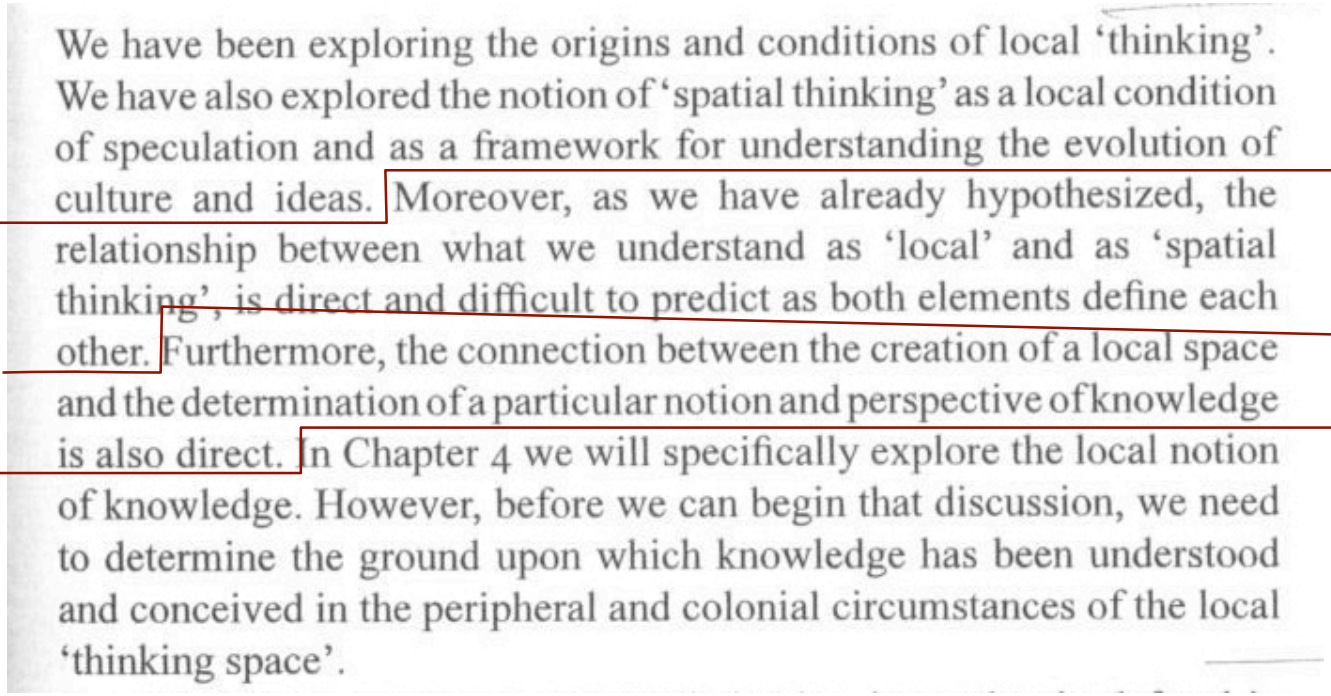


We have been exploring the origins and conditions of local 'thinking'. We have also explored the notion of 'spatial thinking' as a local condition of speculation and as a framework for understanding the evolution of culture and ideas. Moreover, as we have already hypothesized, the relationship between what we understand as 'local' and as 'spatial thinking', is direct and difficult to predict as both elements define each other. Furthermore, the connection between the creation of a local space and the determination of a particular notion and perspective of knowledge is also direct. In Chapter 4 we will specifically explore the local notion of knowledge. However, before we can begin that discussion, we need to determine the ground upon which knowledge has been understood and conceived in the peripheral and colonial circumstances of the local 'thinking space'.

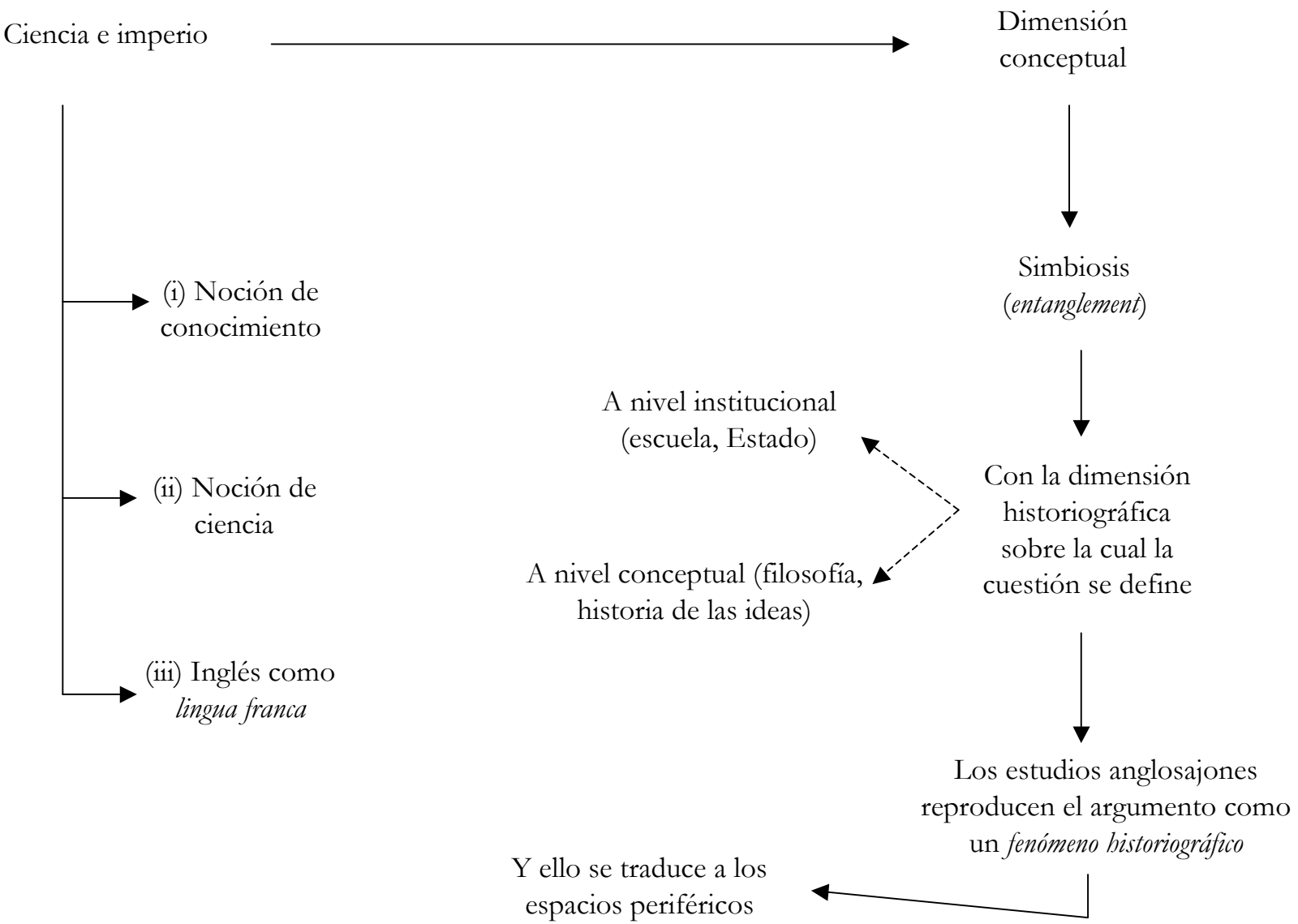
Base, punto de partida

Hipótesis 1

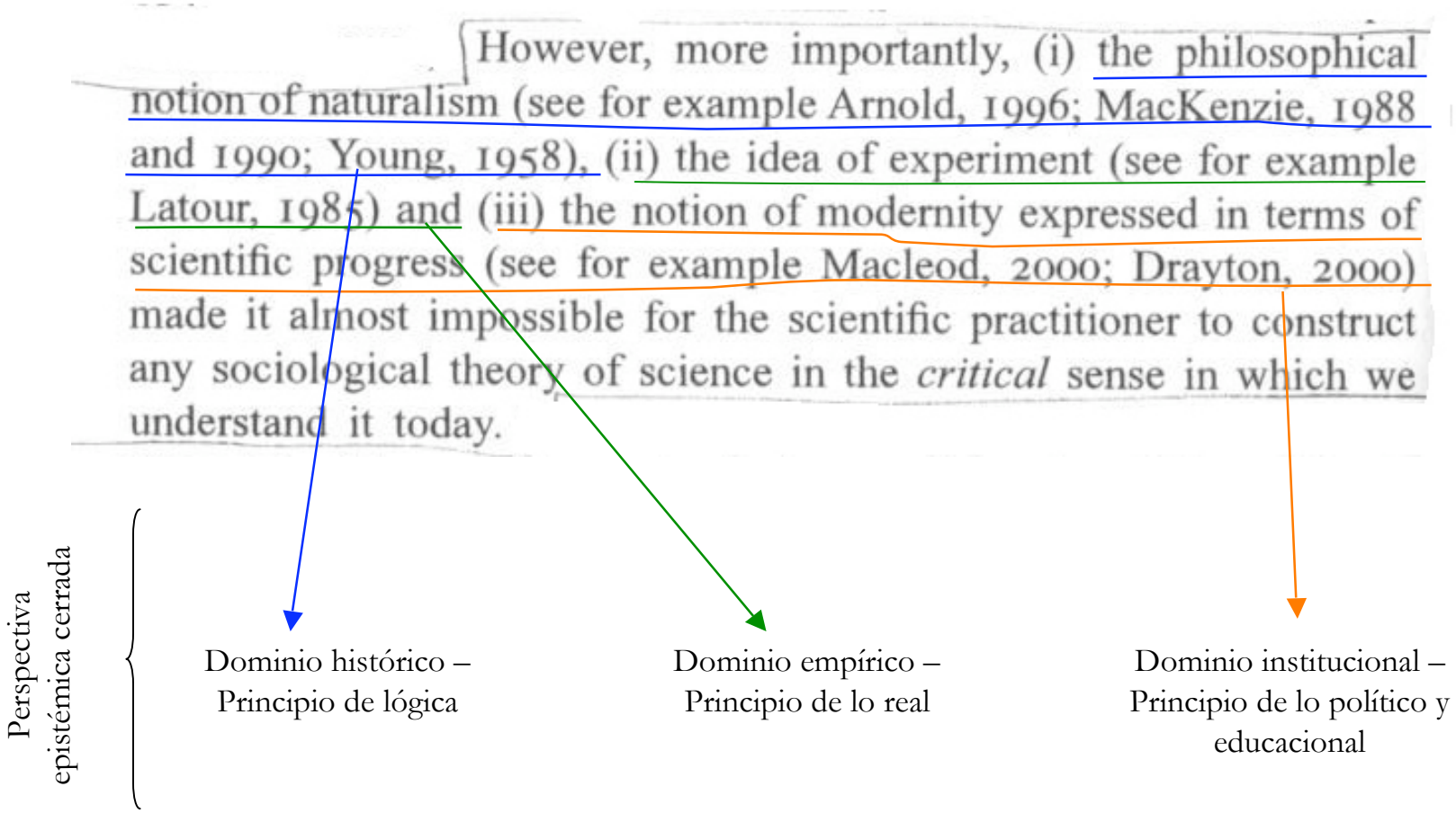
Hipótesis 2

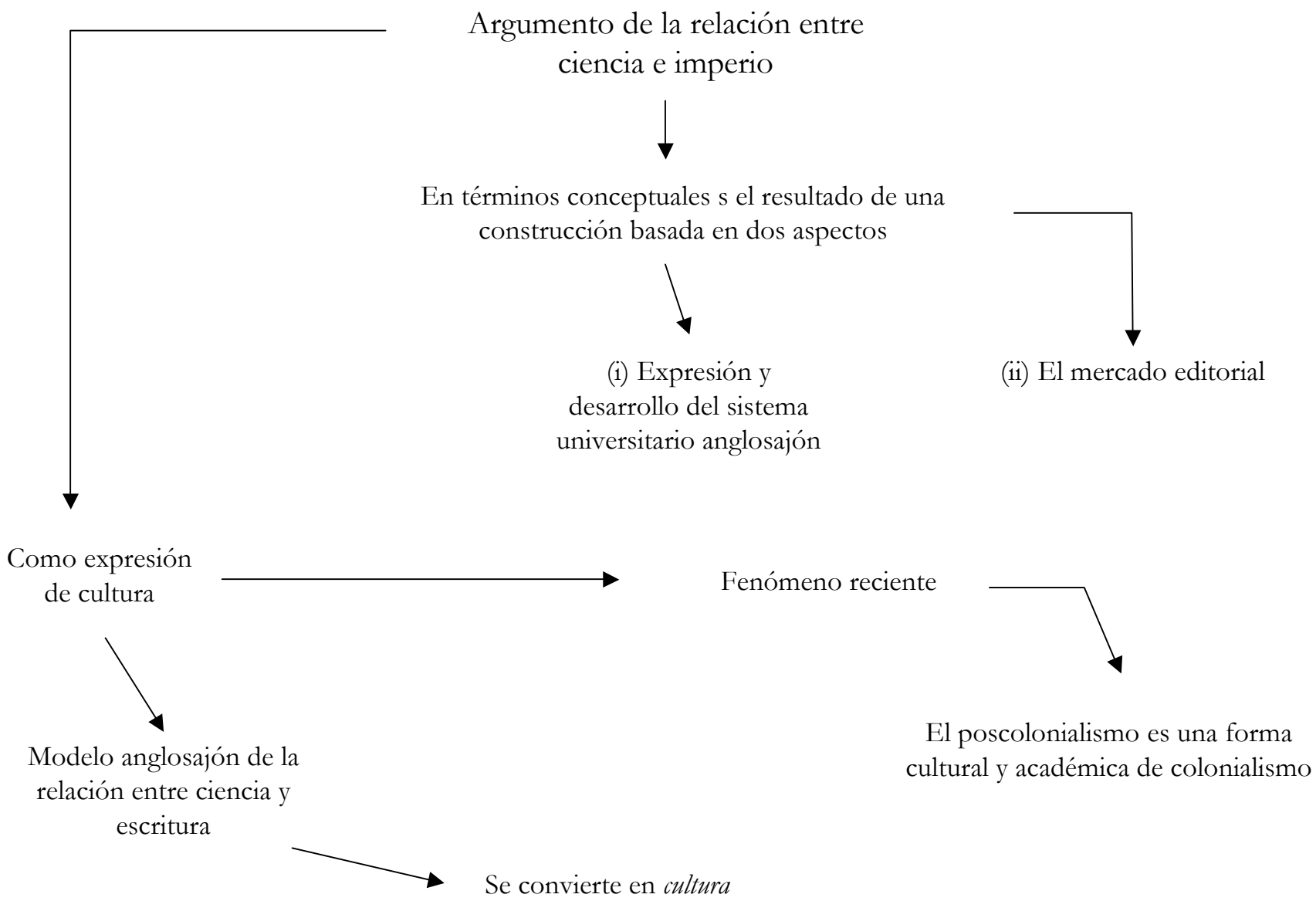
Hipótesis 3

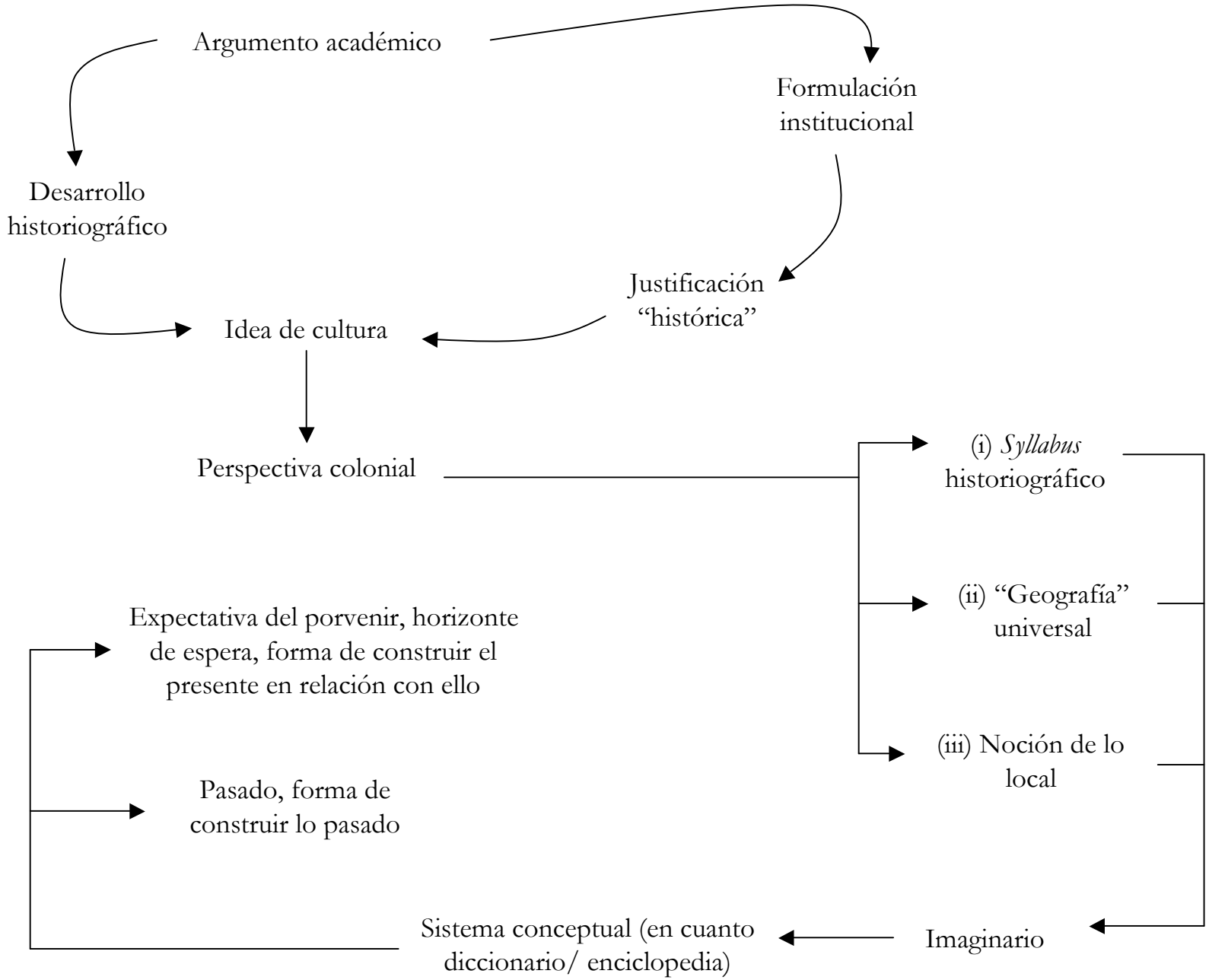
Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 127.


Ciencia e imperio
Dimensión conceptual
Simbiosis (*entanglement*)
Con la dimensión historiográfica sobre la cual la cuestión se define
A nivel institucional (escuela, Estado)
A nivel conceptual (filosofía, historia de las ideas)
Los estudios anglosajones reproducen el argumento como un *fenómeno historiográfico*
Y ello se traduce a los espacios periféricos
(i) Noción de conocimiento
(ii) Noción de ciencia
(iii) Inglés como *lingua franca*

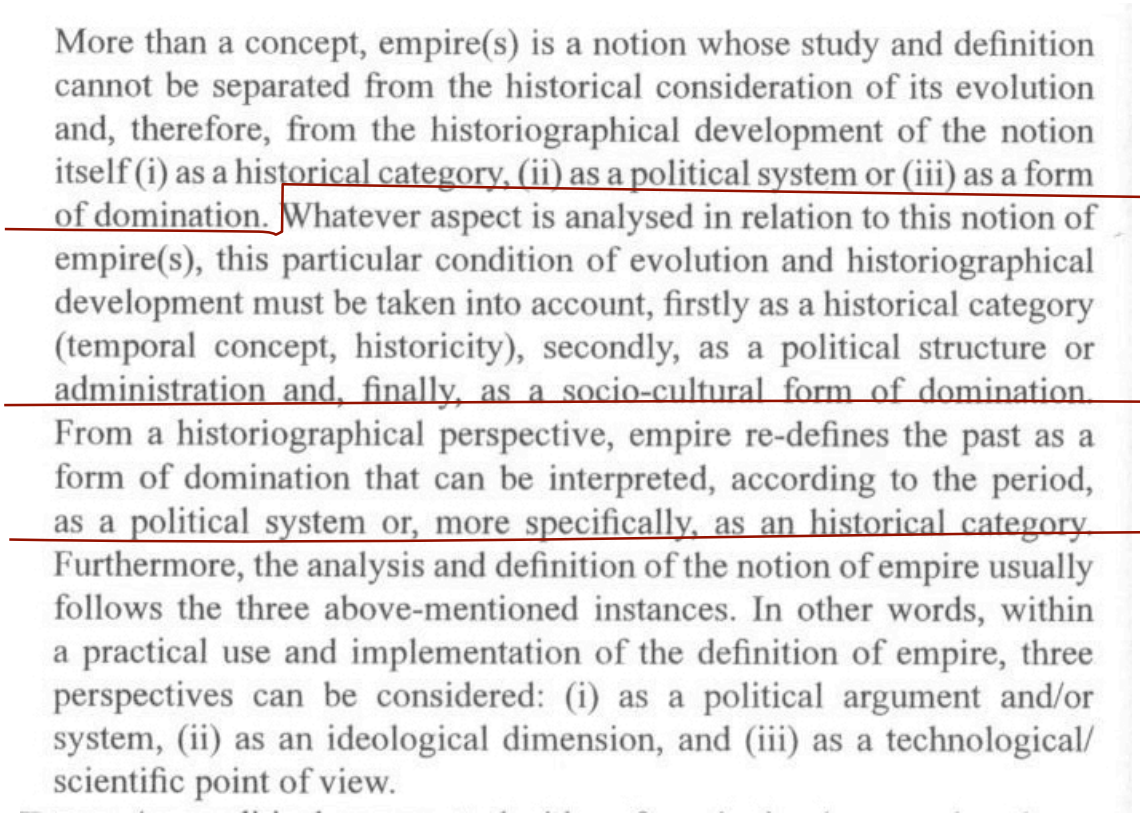
Perspectiva científica tradicional europea




Argumento de la relación entre ciencia e imperio
En términos conceptuales s el resultado de una construcción basada en dos aspectos
(i) Expresión y desarrollo del sistema universitario anglosajón
(ii) El mercado editorial
Como expresión de cultura
Fenómeno reciente
El poscolonialismo es una forma cultural y académica de colonialismo
Modelo anglosajón de la relación entre ciencia y escritura
Se convierte en *cultura*


Argumento académico
Formulación institucional
Desarrollo historiográfico
Justificación "histórica"
Idea de cultura
Perspectiva colonial
(i) *Syllabus* historiográfico
(ii) "Geografía" universal
(iii) Noción de lo local
Imaginario
Sistema conceptual (en cuanto diccionario/ enciclopedia)
Expectativa del porvenir, horizonte de espera, forma de construir el presente en relación con ello
Pasado, forma de construir lo pasado

Imperio y geo-epistemología



More than a concept, empire(s) is a notion whose study and definition cannot be separated from the historical consideration of its evolution and, therefore, from the historiographical development of the notion itself (i) as a historical category, (ii) as a political system or (iii) as a form of domination. Whatever aspect is analysed in relation to this notion of empire(s), this particular condition of evolution and historiographical development must be taken into account, firstly as a historical category (temporal concept, historicity), secondly, as a political structure or administration and, finally, as a socio-cultural form of domination. From a historiographical perspective, empire re-defines the past as a form of domination that can be interpreted, according to the period, as a political system or, more specifically, as an historical category. Furthermore, the analysis and definition of the notion of empire usually follows the three above-mentioned instances. In other words, within a practical use and implementation of the definition of empire, three perspectives can be considered: (i) as a political argument and/or system, (ii) as an ideological dimension, and (iii) as a technological/ scientific point of view.

Condiciones epistémicas

Evolución conceptual y desarrollo historiográfico

Función de la perspectiva historiográfica

Las tres perspectivas del análisis epistémico en relación con la existencia conceptual de imperio

Tres formas de análisis →

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 134.

Como argumento político

1 As a political argument, the idea of empire has been analysed as a product of the State, Government or Nation-orientated administration. This is the classical approach to empire when it is considered within

2 a historical context and, consequently, as part of a particular State-orientated strategy. It is mostly in this sense that authors refer to the 'Roman Empire', 'Spanish Empire', etc. From this perspective, empire

3 can appear as the main institution that allows a panoramic view of the State, the administration, etc., and that is thus comprehensive of almost every domain. Extreme versions of these standpoints, conceived the idea

4 of empire as the ultimate political *logos* (see for example Huntington, 2002). However, empire can also be understood here, in a more specific way, as the political system itself.

En relación con el Estado, producto administrativo

Imperialismo o historicismo

Perspectiva institucional

Posicionamiento

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 134.

En cuanto dimensión ideológica

1 Conceived as a product of a particular paradigm, the empire is connected with a system of beliefs and/or a set of values that are implemented at the social level. The most common way of describing this conception is the ideological approach, that is, the idea that there is
2 a set of *values* that are coherent, conform to a sort of *scheme*, and can be identified through the *analysis of social actors*. This approach has
3 dominated the idea of empire for the whole of the twentieth century, especially for those authors for whom the analysis of history or society was a manifestation of their political beliefs (see for example Galeano, 1973). The notorious principle of *politique d'engagement* has its roots in this approach, as does the development of the notion of *imperialism*.
4 Since the beginning of the twentieth century, the evolution of the category of empire, in terms of ideology, has followed a sort of *escape to invisibility*: rather than grounding the effectivity and efficacy of empire in monuments or in wars for possession of land, empire has been transformed into imperialism, and its roots have been transformed into more subtle forms of domination.

Sistema de valores

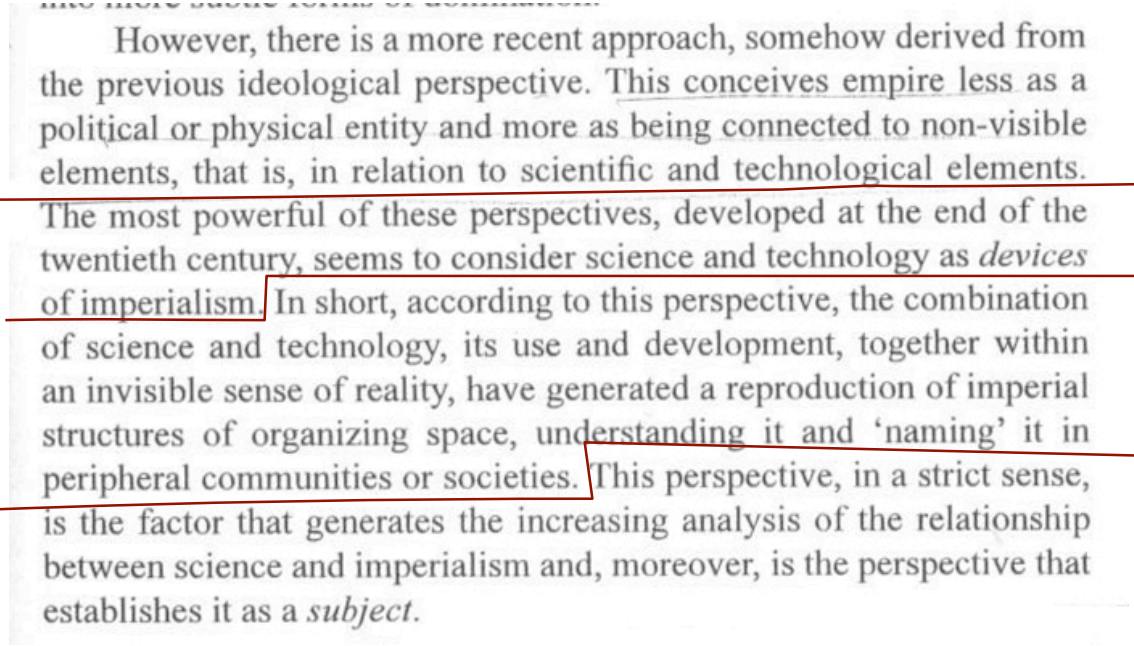
Perspectiva ideológica, actores sociales

Historia de la antología entre análisis sociales y creencias político/culturales

Crecimiento, desarrollo y variedad de la noción de imperio

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 134-135.

En cuanto perspectiva tecnológica, como perspectiva científica



However, there is a more recent approach, somehow derived from the previous ideological perspective. This conceives empire less as a political or physical entity and more as being connected to non-visible elements, that is, in relation to scientific and technological elements. The most powerful of these perspectives, developed at the end of the twentieth century, seems to consider science and technology as *devices* of imperialism. In short, according to this perspective, the combination of science and technology, its use and development, together within an invisible sense of reality, have generated a reproduction of imperial structures of organizing space, understanding it and 'naming' it in peripheral communities or societies. This perspective, in a strict sense, is the factor that generates the increasing analysis of the relationship between science and imperialism and, moreover, is the perspective that establishes it as a *subject*.

1 **La invisibilidad**

2 **Tecnología como cultura**

3 **Tecnología como conocimiento**

4 **Relación directa con la definición de argumento**

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 135.

Conclusión 1

With the historical approach we face the limits of a factually and chronologically outdated analysis. With the ideological approach we have the problem of universal conceptions applicable to every single case and also the idea of regularities, that is to say, recurrent cycles and periods. With the 'scientific' approach we confront the question of knowledge and of by whom and how it is defined. With the geo-epistemic approach there is a double attempt: (i) to try to overcome the limitations of the previous interpretations of empire, and (ii) to try to construct a more accurate epistemological dimension while linking it more closely with a local space rather than with a global-imperial conception.

1 — **Aproximaciones tradicionales**

2 — **Aproximación geo-epistémica**

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 136.

Conclusión 2

Given these indicated conditions and characteristics, the analysis of the relationship between an idea of science and a notion of empire becomes equivalent to the analysis of the development and evolution of these three instances of the notion of empire. Why? Because the idea of science as a 'modern' entity cannot be separated from the establishment of the political system that created the European States, during the nineteenth century, in their present shape. There is a direct conceptual link between conceiving a notion of 'modernity', defining the role of the State (imperialism, colonialism) and establishing an idea of science as a *natural* knowledge (see for example Jardine et al., 1996; MacKenzie, 1990 and 1998; and Miller et al., 1996; see also point 6 later in this chapter).

1

2

3

Idea de ciencia ↔ noción de imperio

Estado ↔ desarrollo de una noción de ciencia

Estado

Educación

Instituciones

Ciencia/cientificidad = naturaleza

Justificación social e intelectual

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 136.

Conclusión 3

1 This is relevant because, just as the idea of empire (and imperialism) cannot be considered separately from the notion of modern State and the meaning of modernity, so the modern idea of science (and scientificism) cannot be separated from (i) the university system established in Europe in the nineteenth century and later in the
2 US during the twentieth century and, also, from (ii) the hierarchical bureaucracies deriving from the evolution of the modern State, and (iii) the development and generalization of the market as a public domain. It is almost impossible nowadays to think in terms of science without considering this entanglement and, therefore, to assume that
3 the conceptual evolution of the idea of empire(s) goes together with the conceptual evolution of the notion of modern science.

Colonialismo ↔ Estado

Tres aspectos de la cientificidad actual

ciencia = evolución conceptual

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 136.

La fundación historiográfica de los imperios

Conclusión 3

The relationship between science and empire analysed from the perspectives discussed above can also be described as an evolving development process, not always chronologically organized, which follows five main periods. These can be summarized as follows. (i) The *historical period*. The relationship between science and empire is founded on historical events, periods or schemes. (ii) The '*war conflict*' *period*. The connection between science and empire is based on the particularities and crisis conditions of a war environment. (iii) The *'political' period*. It is the particular political system and/or structure that creates the favorable conditions for the entanglement between an idea of science and a notion of empire. (iv) The *specific scientific area and/or period*. This is when it is understood that a particular period of a discipline – for example, history of medicine during nineteenth century – or a scientific area – for example, quantum mechanics – allows for a clear understanding/comprehension and better interpretation of the relationship between science and empire. (v) The *post-colonial and 'Science Studies' period*. This is the name used to indicate development since the 1980s, referring not only to the characteristics of the relationship between both notions, but also to the fact that, as concepts, science and empire became entangled and became part of the same *epistémé*, to use Michel Foucault's expression (see Foucault, 1970).

Evolución, desarrollo en cinco periodos

Período histórico

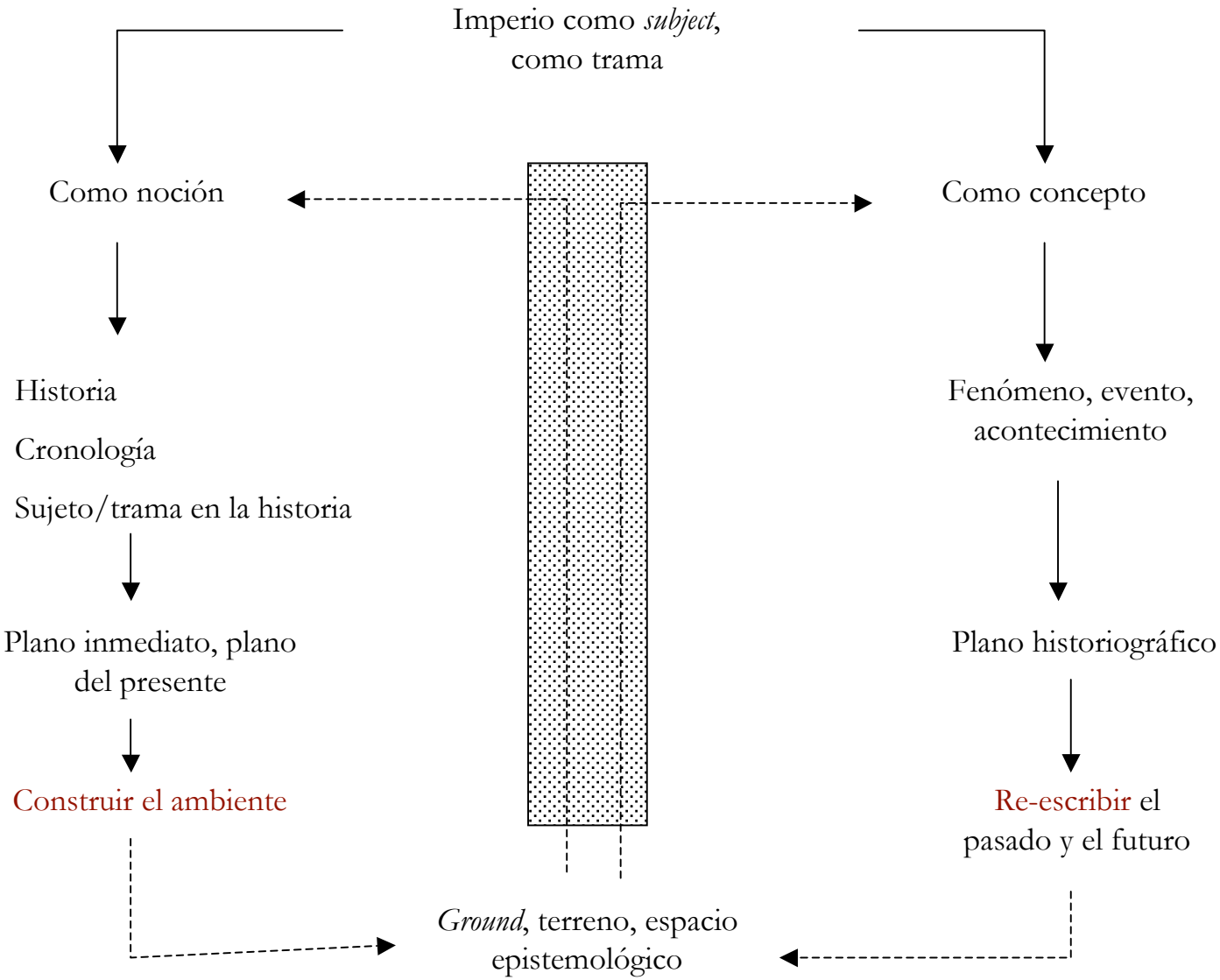
Período "de guerra"

Período político

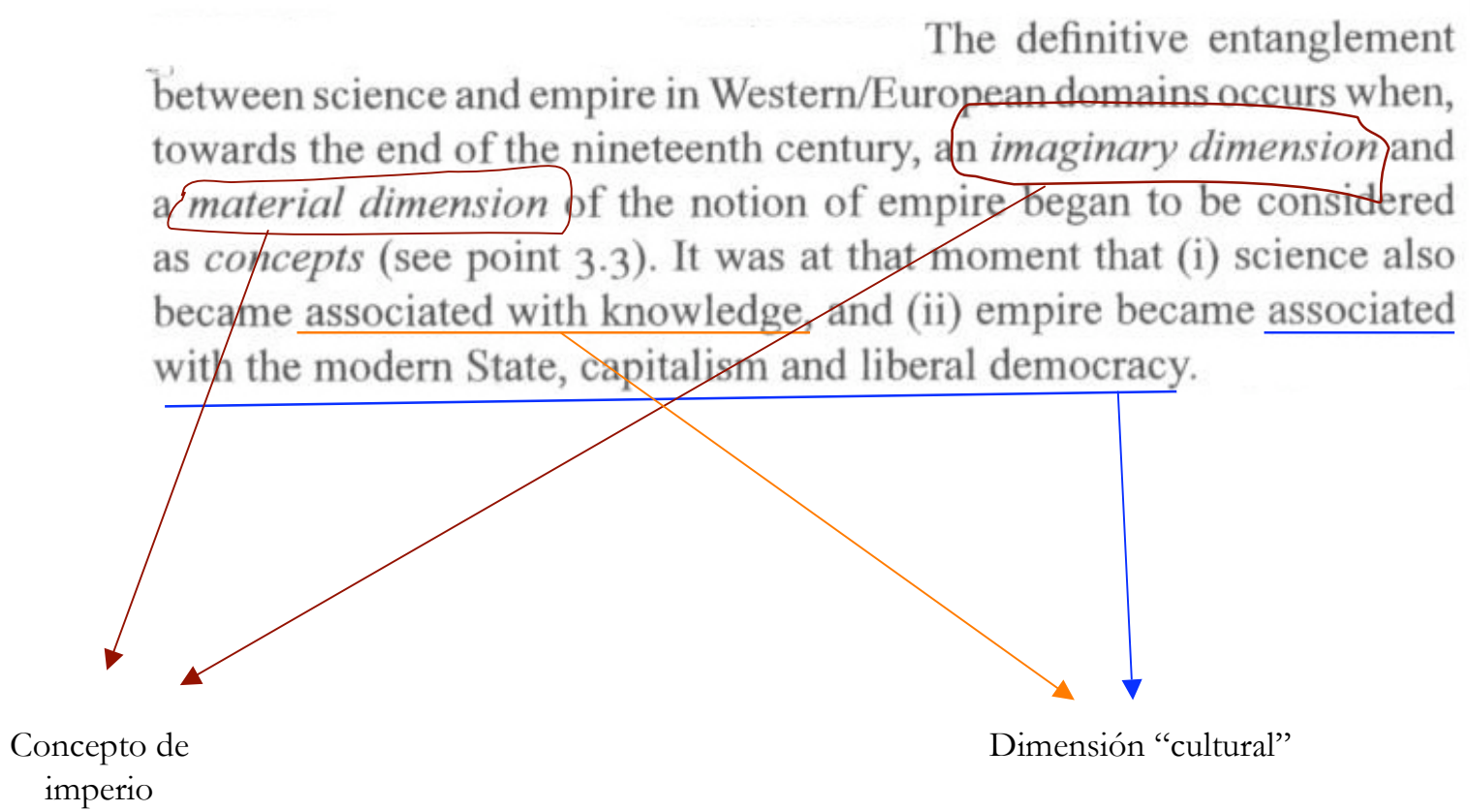
Período de la especificidad científica o del área científica

Período poscolonial o de los "science studies"

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 137.


Imperio como *subject*, como trama
Como noción
Como concepto
Historia
Cronología
Sujeto/trama en la historia
Plano inmediato, plano del presente
Construir el ambiente
Fenómeno, evento, acontecimiento
Plano historiográfico
Re-escribir el pasado y el futuro
Ground, terreno, espacio epistemológico

Imperio como *subject*, como trama



Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 138.

Ciencia como conocimiento

Nowadays, the notion of empire, that is empire as a simple *historical argument*, is associated with information and does not have much theoretical relevance for authors dealing with it as a specific subject (see for example Benton, 1994; and Baber, 1996). Furthermore, in some cases this notion of empire is associated with a certain administrative and bureaucratic point of view: a government or State-orientated perspective (see for example Hefferman, 1994; Pimentel, 2000; and Gascoigne, 1999). In fact, the recent works dedicated to the relationship between science and empire are clearly a product of, among other things, the *historiographical* consideration of empire as a concept (see for example Baber, 1996). The idea, for example, of the existence of something called 'colonial science' is a clear indication of this situation (see for example Schiebinger, 2005). Paradoxically, beginning with Friedrich Nietzsche and ending with Sigmund Freud, one can observe, on one hand, an agreement with regard to the decadence of European culture and, on the other hand, academics celebrating a 'triumphal' notion of European science and State. In this respect, it is not surprising that many authors have recently postulated as non-compatible the rise of a technological and scientific culture opposed another humanitarian and artistic culture that is falling (see for example Steiner, 1963 and 1971; also the debate about the 'methodological unit' of science in Snow, 1959 and 1964; Canaparo, 2003).

Perspectiva histórica

Perspectiva institucional

"Colonialismo científico"

Cultura vs ciencia

Dos dimensiones ajenas

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 138.

Following the previous point we can establish that the relationship between science and Empire, despite the fact that they started to be mentioned as related arguments during the nineteenth century, only emerged as an analytical area/domain when Empire as a concept was already in place. Equally important, they also emerged at a time when 'science' was considered as pure knowledge in an empirical and a philosophical sense. It was only towards the end of the nineteenth century and the beginning of the twentieth century, when science started to be considered as the most advanced and 'perfect' form of knowledge and philosophy, that from the analytical point of view it became coherent to consider the relationship between science and empire as natural and necessary. In this sense, the emergence of the analytical relationship between science and empire cannot be separated from the development of the philosophy and history of science, as in fact it cannot be separated from the development of a 'scientific culture' aimed at dominating our contemporary *social imaginary*, as is very clear in a number of works by authors such as Bruno Latour (see for example Latour/Weibel, 2005).

Ciencia e imperio mediados por conceptos

La conexión entre naturalismo y colonialismo

Ciencia ↔ imperio

Filosofía ↔ historia de la filosofía

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 139.

Ciencia como conocimiento

Therefore, the idea of science and empire is directly connected with a notion of *knowledge*. It was this notion, in philosophical and European terms, that facilitated the introduction in the colonies of the *universalization of reality* through the idea of 'naturalism', 'rational language' and 'scientificity'. This was a completely new and radical cultural phenomenon since the disappearance of the idea of God as the 'Universal Master' (see for example Wallerstein, 1974). In practical terms, this universalization was implemented by (i) an idea of education, (ii) progress based on institutional achievements, and (iii) the enlightenment conception of communication, a set and ensemble that prevails even today. In order to overcome this situation and to avoid the simplification of standardization ('globalization'), a number of authors introduced the category of *translation* as a fundamental and basic concept in the study of philosophical, scientific and cultural evolution (see for example Latour, 1987 and Montgomery, 2000). Consequently, the idea of science and knowledge as a corpus and/or narratives that are *translated* into another culture represented an approach that somehow acknowledged the questions raised by the notion of *location of knowledge* previously indicated. Thus, this *translation* features two immediate dimensions: the material and the imaginary.

Conocimiento ↔ sentido de realidad

Educación

Instituciones

Comunicación

Translación/ traducción

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 139.

La dimensión material e imaginaria de los imperios

The first dimension, the *material* dimension, is connected with constructions (architecture), instruments (laboratory, experiments) and objects (writing, museums/'museum-ing', archives/archiving). Constructions have been created locally with the help of foreign designers or based on the local *interpretations* of what was done elsewhere (see for example Arnold, 1988; Macleod, 1987; Sheets-Pyenson, 1988). As for instruments and objects, they were first *imported* and then copied/reproduced, including local *adaptations* or, when the object was *localized* within the colony space, it was their meaning, taxonomy and interpretation that were imported.

Interpretación

Importación

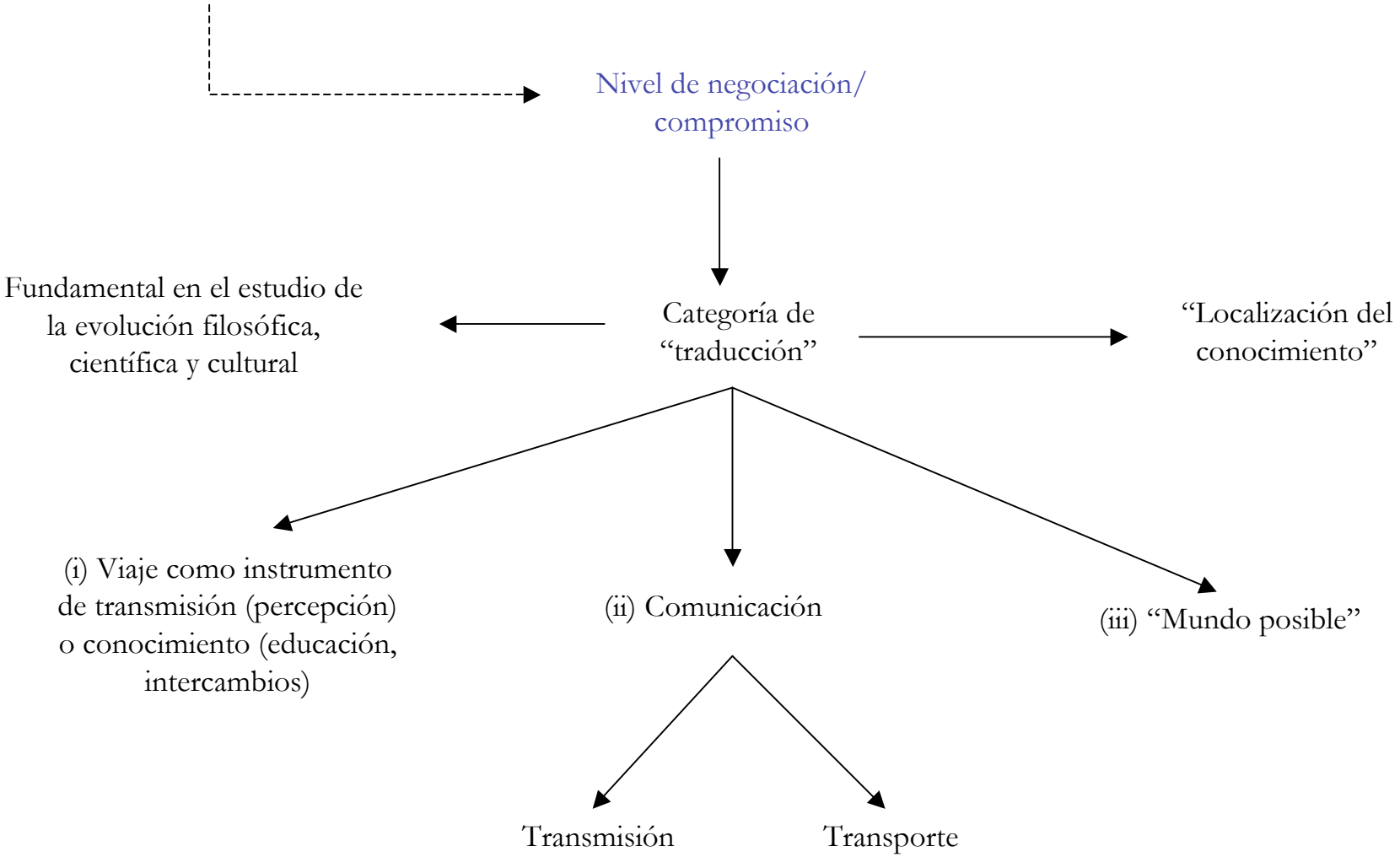
Adaptación

Arquitectura

Museos, archivos

Instrumentos, laboratorios

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 139.


Nivel de negociación/ compromiso
Fundamental en el estudio de la evolución filosófica, científica y cultural
Categoría de "traducción"
"Localización del conocimiento"
(i) Viaje como instrumento de transmisión (percepción) o conocimiento (educación, intercambios)
(ii) Comunicación
(iii) "Mundo posible"
Transmisión
Transporte

El *translation effect*

"Conversiones" constantes

By the middle of the nineteenth century the issue of *translation* became an inevitable methodological aspect of any cultural or scientific activity; furthermore, academic authors began to develop theories around the idea of proper *conversion* tables and taxonomies (see for example Adas, 1989; and Clifford, 1997). Therefore, perspectives on historiography completely changed as authors were forced to become aware of the distinction between a *context of production* and a *context of reception* in relation to any particular value, concept or object (see for example Verón, 1987). In terms of the relationship between science and empire, this lead to increasing levels of detail and information in publications, but also to a new historical trend in the approach that soon became a new form of *historicism* (*Geschichtlichkeit*). This approach almost exclusively considered the relationship between science and empire from the chronological, historical ('historicity'), and time-scale point of view. At the same time, as a result, a *geo-epistemic approach* can be seen as an alternative and as an outside understanding of the question. By the end of the twentieth century it was almost widely accepted by specialists and academic authors that there were no longer any *original* contexts or *natural* situations within the relationship between science and empire, and that everything needed to be considered or thought about from the point of view of *translation*.

Desarrollo científico ↔ ínsita actividad de traducción

Historiografía como "ciencia nacional"

Historicismo como recurso científico

Perspectiva geo-epistémica como alternativa

La ciencia como traducción (colonialismo)

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 142.

Niveles de negociación

	Travel (Level 1)	Communication (Level 2)	Language (Level 3)
Material dimension	T_1	T_2	T_1
Imaginary dimension	T_1	T_1	T_2

Dos dimensiones

TABLE 3.1 The definitions of translation in the context of the science and empire relationship. T_1 stands for translation in 'linguistic' terms and T_2 in 'cultural/scientific' terms.

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 145.

"Principio de relatividad/ relativismo", principio de relacionismo expresado espacialmente

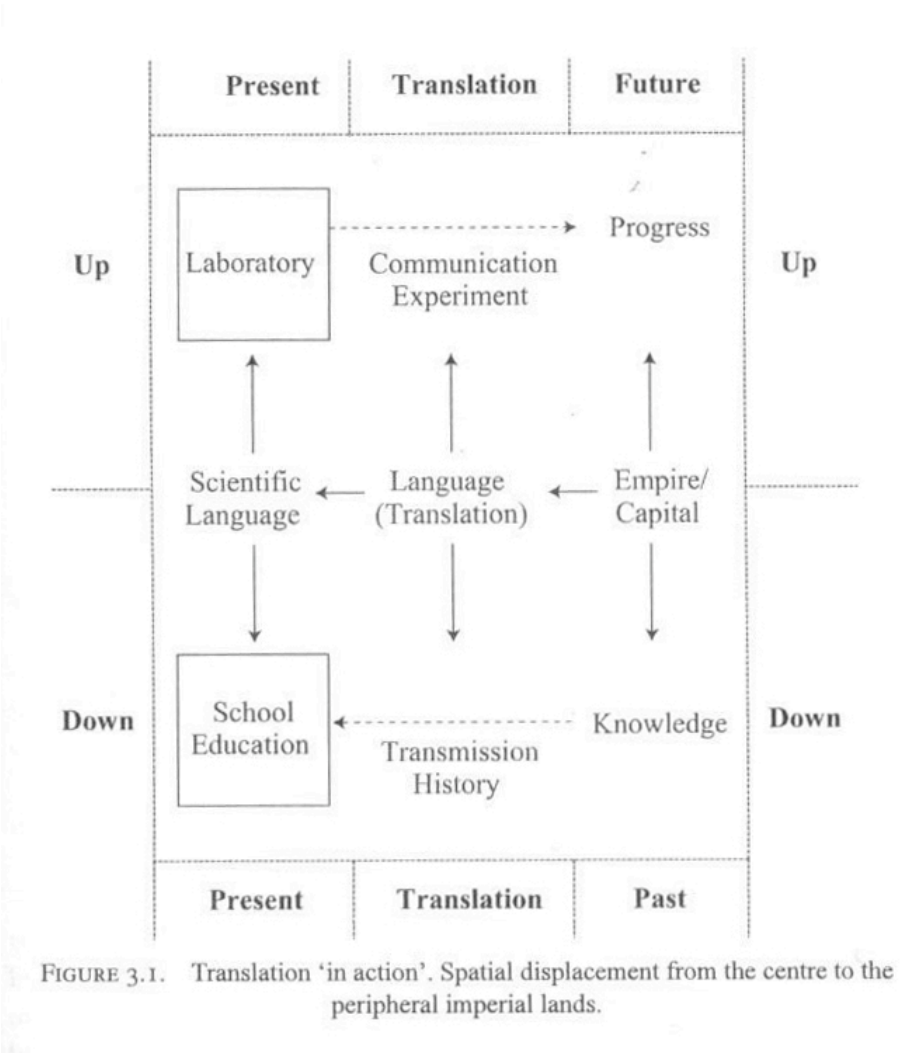


FIGURE 3.1. Translation 'in action'. Spatial displacement from the centre to the peripheral imperial lands.

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 146.

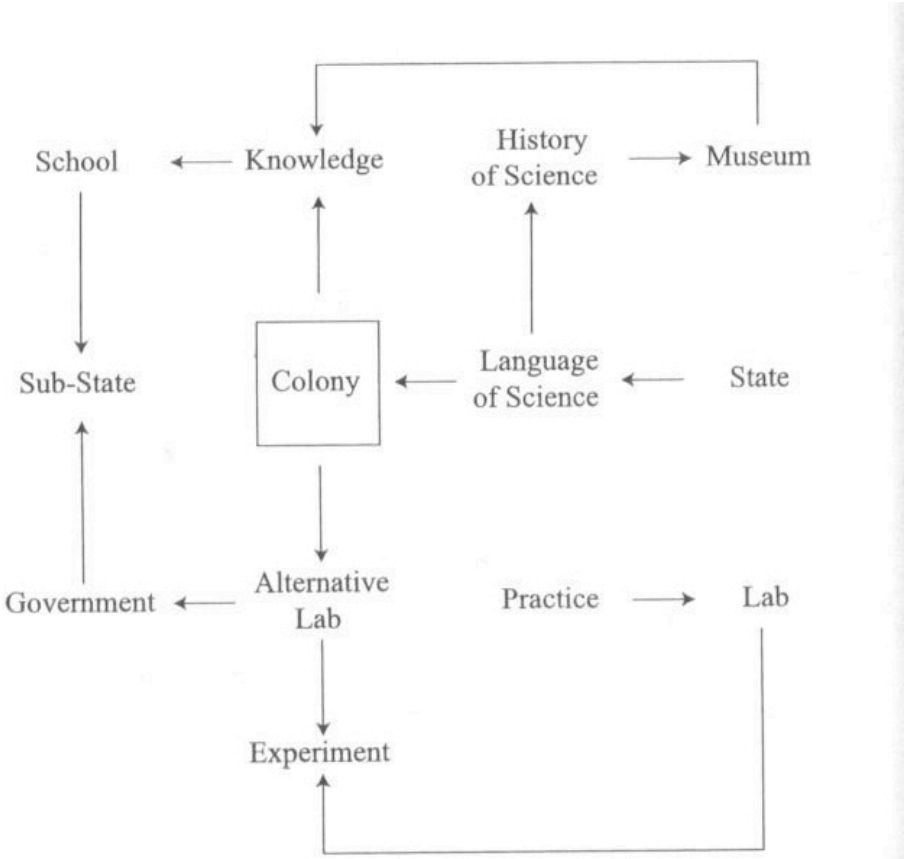


FIGURE 3.2. The main institutional exchanges between the empire and the colonies and vice versa.

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 146.

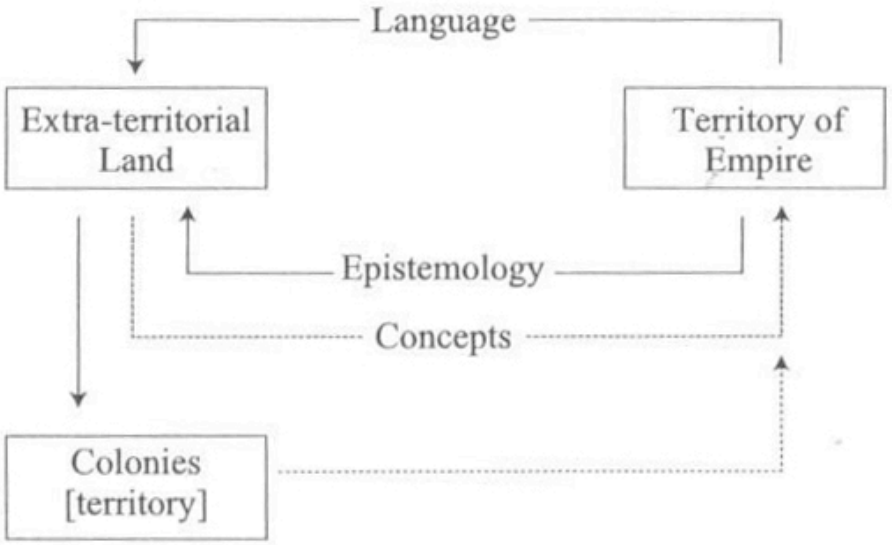


FIGURE 3.3 Diagram of the relationship between science and empire.

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 147.

Matriz "imperial" del espacio

De la construcción urbana-arquitectónica
la construcción de la cientificidad

The construction of empire(s) in Western/European domains cannot be separated from the development and exploitation of the colonies – people, land – while science and technology were among the most prominent instruments employed. The construction of houses, buildings, transport systems and engineering works within the colonies were the most powerful means that European science and technology used in order to become established (i) as an academic discipline, (ii) as a cultural device, and (iii) as a source of political legitimacy and governance. At the same time that, for example, railways and astronomical observatories were being built and designed in the colonies, the notion of science and technology, as discipline, as corpus, as *saber* and institution, was defining more and more *one sense* of reality and one set of methodological work considered as *natural* and definitive corpus. At the end of the nineteenth century, for example, Anglo-Saxon scientific journals dedicated more than half of their pages to 'colonial events' or to 'scientific events' connected with some colonial location (see for example Canaparo, 2003: 261–366).

Construcción ≈ colonialismo ≈ progreso

Empleo de la ciencia y la tecnología

Ciencia/tecnología = principio de realidad

Medios y ciencia-tecnología

Naturaleza

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 148.

De la construcción urbana-arquitectónica
la construcción de la cientificidad

Matriz "imperial" del espacio

Within this context, as we have already demonstrated, it is almost impossible to make a distinction between science and knowledge as two separate entities, and moreover, the nineteenth-century consideration of science as the most accurate and superior form of knowledge is certainly based on this imperial connection. This is why examining the *spatial* distribution and creation of an empire – rather than following chronological or temporal series or parameters – can help us to understand how *science as knowledge* has been determined and imposed. I will call this situation and adjustment the *imperial matrix of space*.

Ciencia ≈ conocimiento

Ciencia como forma superior de conocimiento

Perspectiva espacial

Evitar metodologías temporales o cronológicas

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 149.

Matriz "imperial" del espacio

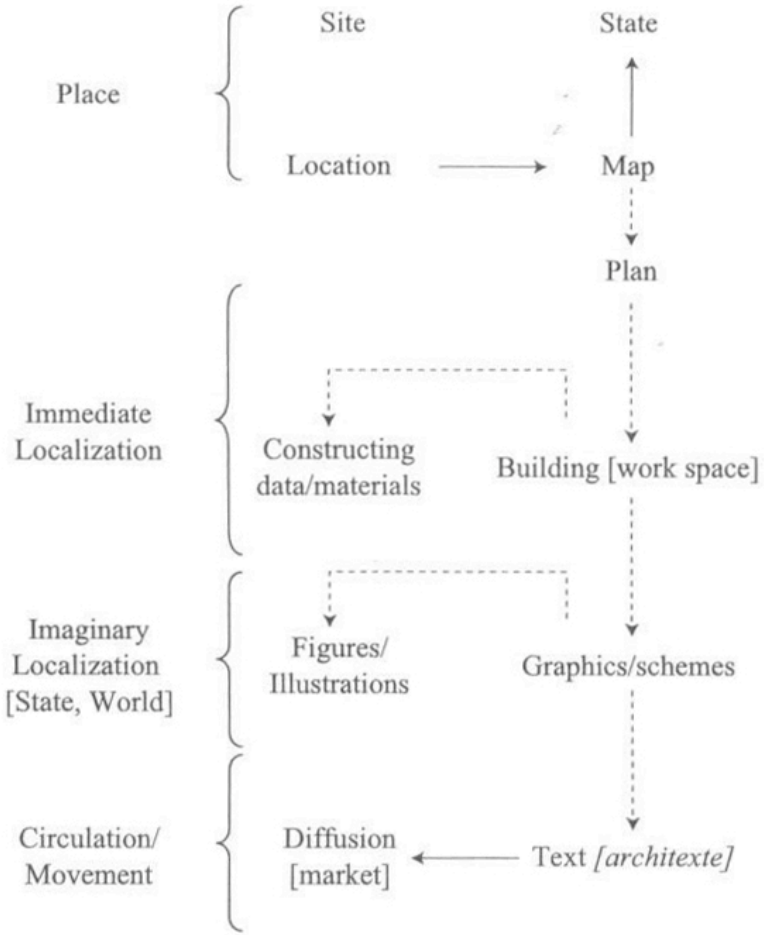


FIGURE 3.4. A possible formulation of the *imperial spatial matrix*.

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 147.

Evolución de la relación ciencia/imperio

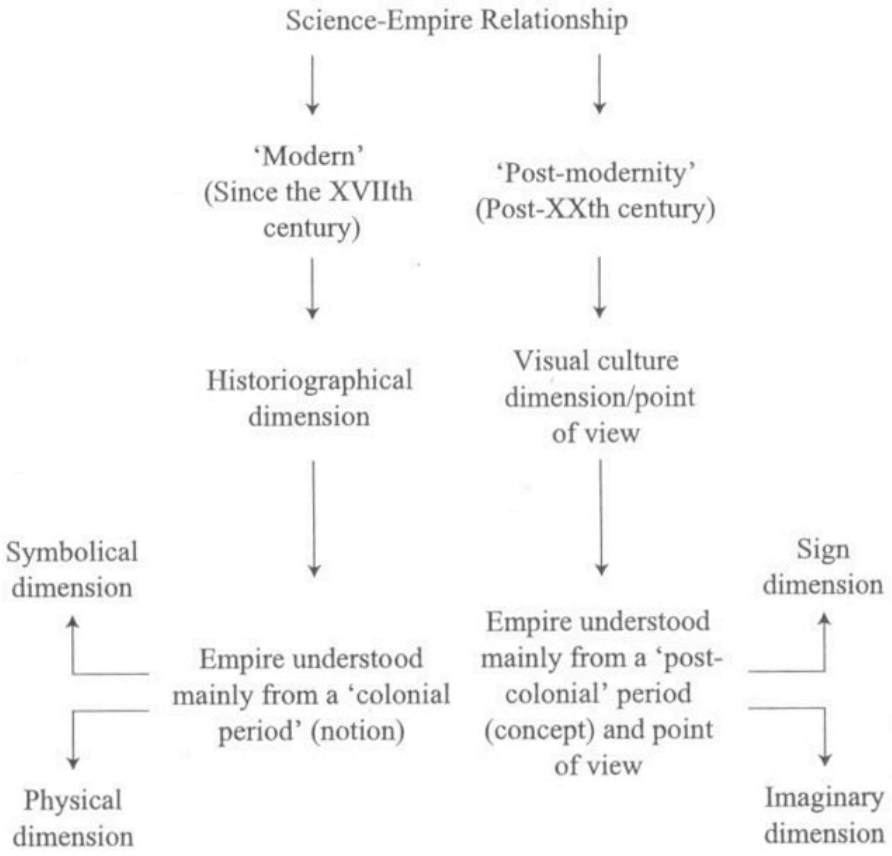


FIGURE 3.5. The relationship between science and empire from an evolutionary point of view.

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 152.

Modernidad, ciencia y conocimiento

Cfr. por ejemplo teorías de E. Dussel y W. Mignolo

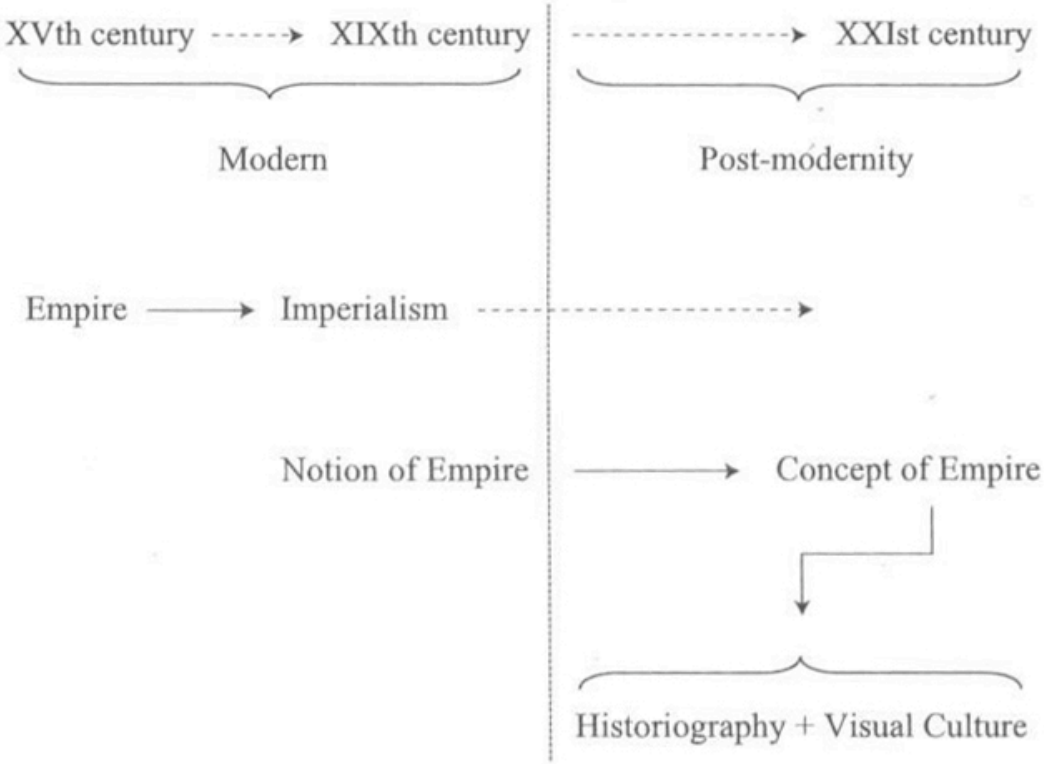


FIGURE 3.6. The historical evolution of the notion/concept of empire.

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 155.

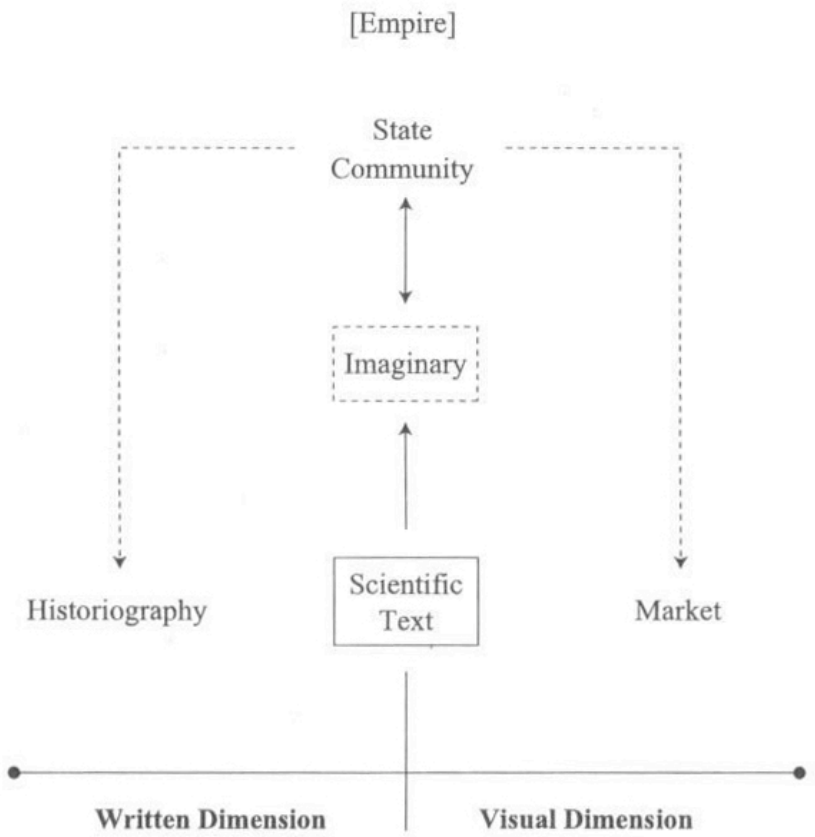


FIGURE 3.7. The two dimensions of the concept of empire.

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 156.

Colonial period	Post-colonial period
Modernity as economic or political notion.	Modernity as ideology
Imperialism as policy, as material reality and as government.	Imperialism as 'mentality' and as *imaginary*
Notion of Empire	Concept of Empire
Symbolic/physical dimension	'Sign'/Imaginary dimension

TABLE 3.2. The transformation of colonialism from a conceptual point of view.

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 159.

Cfr. por ejemplo teorías de E. Dussel y W. Mignolo

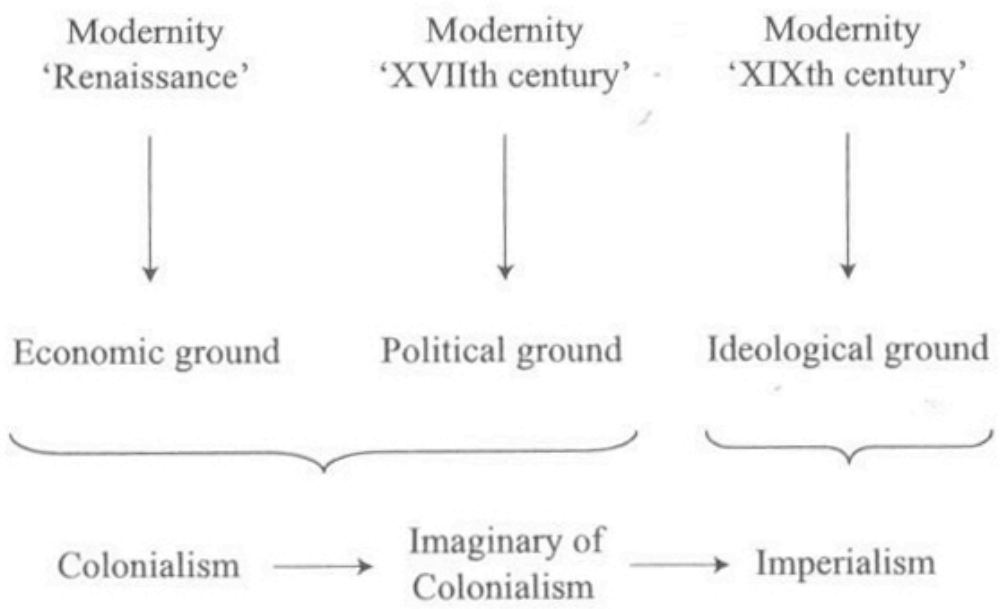


FIGURE 3.8. The evolution of colonialism into imperialism. The case of Latin America.

Fuente: *Geo-Epistemology. Latin America and the Location of Knowledge* (Bern: Peter Lang, 2009), p. 161.