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Spatial Translations and Embodied Bilingualism: Defining the Migrant's Experience from an Architectural Perspective

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Abstract

As a bilingual writer and architect, my research is practice-based and multidisciplinary. In pulling together theories and practices about Space, Language and the Body, my aim is to develop a notion of Embodied Bilingualism. If the word 'translate' is to move something from one place to another, as architectural historian Robin Evans explains, then one needs to understand its pure and unconditional existence as a geometrical construct in the first place in order to fully appreciate the workings of linguistic translation.¹ In this paper, language is considered as an embodied practice, which for the bilingual migrant leads to considerations about translatory motion not only of the body, but also of words. Using the contribution of Henri Poincaré to the philosophy of geometry, we will see how the body's very own capacity of movement contributes to the understanding of the movement of words.²

Keywords: phenomenology; embodied bilingualism; spatial translation; movement; geometry; physiology

1. Introduction

This paper is concerned with the relationship between language and displacement, and in particular argues for an understanding of bilingualism as an *embodied* and *spatial practice*.

Trained as an architect, my approach to the subject is multidisciplinary and borrows from linguistics as well as phenomenology, philosophy, physiology and geometry.

The relationship between architecture and language has been largely discussed under what is known as the semiotics of architecture, which was developed subsequently to Saussure's work on language.³ Architecture, it is worth mentioning, is a multidisciplinary practice, which often borrows and learns from other disciplines. So works like Roland Barthes' analysis of buildings as signifiers in 'Semiology and the Urban'⁴ or 'Function and Sign: the

¹ Robin Evans: *Translations from Drawing to Building and other Essays*. London: Janet Evans and Architectural Association Publications, 1997.

² Henri Poincaré: *La Science et l'Hypothèse*, Paris: Flammarion, 1902.

³ Ferdinand de Saussure: *Cours de linguistique Générale*. Paris: Editions Payot & Rivages, 1916.

⁴ Roland Barthes: 'Semiology and the Urban'. Lecture given on 16 May 1967, under the sponsorship of the Institut Français, the Institute of the History of Architecture at the University of Naples. In: Neil Leach (ed.):

semiotics of Architecture'⁵ by writer and philosopher Umberto Eco, even if their scope was limited to the 'architectural object', have become seminal pieces in defining this relationship between language, or more precisely the sign, and architecture.

The spatiality of language on the other hand has been somehow overlooked. If Saussure did use diagrams for his lectures, it seems that very few have actually been reproduced in the publication of his 'Cours de linguistique générale', and critics refute the practice as merely illustrative.⁶

Many examples, however, seem to attest to our need to 'visualise' language, and in particular its grammar, by way of diagrams. Noam Chomsky's works on linguistics, for instance, call for mathematical representations and have indeed subsequently influenced computer science greatly. Although my research inevitably uses linguistics studies and terminology and even if it eventually raises new questions in the field of linguistics, my contribution is not solely aimed at linguistics. The aim of this paper is not so much to show that language is effectively a spatial construct, but rather to consider language as an embodied practice. 'Embodied Bilingualism' can only be understood through the exploration of the triadic relationship between *the body, space, and language* as these three aspects are inherently interdependent in the experience of the bilingual migrant. Language cannot be thought of in isolation from the others and vice versa.

2. Language as a spatial and embodied practice

Various analogies between language and mapping have been made, and by way of introduction I would mention here some of the most famous. In *Thousand Plateaus*, Deleuze and Guattari clearly refer to writing as a spatial practice: "*Ecrire n'a rien à voir avec signifier, mais avec arpenter, cartographe, même des contrées à venir.*"⁷

Jean-Jacques Lecercle takes up this analogy between the linguist and the cartographer in *The Violence of language*:

Rethinking Architecture: a reader in cultural theory. London: Routledge, 1997, p. 158-172.

⁵ Umberto Eco: 'Function and Sign. the Semiotics of Architecture'. In: *The City and the Sign*. Gottdiener and Lagopoulos (eds.). New York: Columbia Univ. Press, 1986.

⁶ See Molly Nesbit: *Their Common Sense*. London: Black Dog Publishing Limited, 2000, p. 36: "Though at one point Saussure did liken the synchronic axis of language to the projection drawing and often sketched diagrams, he did not try to think language through the geometric line. No man of letters would." The book is an interesting, if very critical, almost historical account of the effect that the teaching of descriptive geometry in French classrooms coupled with a particular approach to language has had on 20th century visual arts in the country.

⁷ Gilles Deleuze et Félix Guattari: *Mille Plateaux*. Paris: Les Editions de Minuit, 1980, p. 11, trans. B. Massumi. "Writing has nothing to do with signifying. It has to do with surveying, mapping, even realms that are yet to come". In: Gilles Deleuze and Félix Guattari, *A Thousand Plateaus*. London: Athlone, 1988, p.5.

The linguist is a cartographer; the language he studies is the territory he maps out. And as the only truly exact map would be on a scale of 1:1, and would cover the territory it represented, the only comprehensive grammar of a language would be coextensive with the language itself.⁸

He goes on to stress the ineluctable failure of such an enterprise, and points at the limit of the analogy where grammar simply cannot cover the entire use of language and exceptions remain. Here the comparison between language and the spatial practices of surveying and mapping is an analogy, which shows how both might share similar methods but also similar limitations.⁹

If surveying is taking measure of a territory and mapping is representing it, then language becomes this measuring tool, in the phenomenological sense that Heidegger describes in his essay *Poetically Man dwells*, where Man takes measure of his Being on Earth through poetry.¹⁰ Writing becomes the representation or physical manifestation of this surveying activity.

Materiality of language is indeed one of the necessary conditions to considering language as a spatial practice. Words are a trace on paper, a sound in your ear. They can be manipulated, they can be moved, or as Lecerle puts it:

Words do not only do things, they are things. Language can not be a simple representation of the world; it is also an intervention within it, to be analysed in terms of positions, advance and retreat, territorial markings, and deterritorialisation.¹¹

What I am most interested in here is not merely language used as a representation of space or how it might express spatial conditions, but instead how language is always *enacted*, the result of an action, forever associated with the physical subject speaking or writing it, for no language can exist without being spoken or written by someone. Interestingly, Lecerle also gives a reading of Deleuze and Guattari's theories on language and writes:

In Saussurean terms, language is a system of arbitrary terms, with no 'extrinsic factor'. Signs - this is what lies at the bottom of their arbitrariness - are separated from the world. Against this, Deleuze and Guattari stress not only the non-autonomy of language, but also its materiality. Language is caught both in the bodies of its utterers and in the society that they form.¹²

The fact that in his book the *Violence of Language*, Lecerle spells the philosophers' title A

⁸ Jean-Jacques Lecerle, *The Violence of Language*. London: Routledge, 1990, p. 18.

⁹ For the impossibility of mapping a geographical territory thoroughly see Jorge-Luis Borges' description of mapping in *Del Rigor En La Ciencia*. In: *El hacedor*. Buenos Aires: Emecé, 1960.

¹⁰ Martin Heidegger: ...Poetically Man Dwells..., in *Building, Dwelling, Thinking*. Trans. Albert Hofstadter. New York: Harper & Row, 1971, p. 211-229.

¹¹ Lecerle, *The Violence*, p. 47.

¹² Lecerle, *The Violence*, p. 47.

Thousand Plateaux with an x instead of *A Thousand Plateaus* with an 's', as published by Athlone in 1988, two years before the publication of his own book, is only proof of language being caught into the writer's body as Lecerle resists the English spelling used by translator Massumi for the English version of the book. Although both spellings are acceptable in English, writing *Plateaus* in French would be considered a gross spelling mistake since words ending in -eu, -au and -eau are exceptions to the plural grammatical rule and take an x in their plural form. As with every rule, there are also exceptions to the exceptions but *plateau* is not one of them. In French *plateau* simply cannot bear an s and Lecerle could not bring himself to write such an eyesore. And so it seems that *plateaux* was trapped into the Frenchman's body.

In his analysis of Deleuze and Guattari's ideas about language, he then goes on to consider the social aspect of language within the framework of their philosophical positions, of power and rebellious attacks. Here I will not consider the use of language as a political tool, but rather as a purely spatial one, a tool of localisation and orientation of the body. I will consider how *language is caught in the bodies of its utterers* and is dependent not only on the society that they belong to or come from, but also dependent on their actual location. In other words, how *language is caught in bodies and space*.

For psychologist Lera Boroditsky, the material expression of language, and in particular the way we write, directly affects us and shapes our understanding and representation of Time:

English Speakers tend to talk about time using horizontal spatial metaphors (e.g. "the best is ahead of us", "the worst is behind us"), whereas Mandarin speakers have a vertical metaphor for time (e.g. the next month is the "down month" and the last month is the "up month").¹³

She goes on to explain that these are not merely metaphors but that our spatial representation of time is indeed shaped by the way we write. Although thinking of time 'vertically' does not come naturally to westerners, we can still understand this way of thinking, because we understand its geometry and we can switch, or transform, the vertical representation to the horizontal one we are used to, using geometry.

For this paper on language, migration and diaspora, and bearing in mind the above mentioned, I will simply consider the migrant as someone who learnt his/her first language in one country and his/her second language in another country. Being a migrant in this case implies not only to have to specify the location of the speaking subject, but also to specify the

¹³ Lera Boroditsky: 'How does our Language shape the way we think?' In: Max Brockman (ed.): *What's Next? Dispatches on the Future of Science*. USA: Vintage, 2009.

location in which the words were initially learnt. Someone who has learnt his/her first words in a country has effectively carried them through to another country. The migrant therefore can cultivate various relationships with words depending on his/her location and the language he/she speaks. I have devised a diagram called *the matrix of bilingual subjectivities*, mapped on my personal bilingual experience, to show that two languages might offer in fact four different conditions: speaking French in France, English in France, English in England or French in England. For the sake of clarity of the argument I have only considered the act of speaking a language, but one could also include, and refine the analysis, by considering the subjectivities of the *listener, reader or writer*. Further subjectivities could also be derived depending on the person the subject is addressing but I will not develop this here. It suffices for the present argument to consider the location of the speaker as well as the language spoken.

3. Following the movement of words and the body

In the following section I will concentrate on the idea of movement or migration of words as well as migration of speaker. According to the Oxford English Dictionary, ‘etymology’ is “The process of tracing out and describing the elements of a word with their modifications of form and sense”. Again the definition employs a spatial analogy and one might imagine a draftsman carrying out a survey and tracing the places of origin of the words as well as its various forms. “Describing” is another graphic word. Words are a trace on paper, or a sound in your ear.

In his book titled *Words and Buildings*, architectural historian Adrian Forty is acutely aware of the necessity of tracing back the origin of words and takes into account not only time but also various meanings in different languages in his account of architectural ideas. Forty talks of ‘transitoriness and migration of ideas and words’:

Although the trade between languages is in some respects a difficulty in a book like this, in another sense the problem of translation is simply another manifestation of the transitoriness of meaning that is central to the whole enquiry: the migration of ideas and words from one language to another is another aspect of what goes on within a single language as one metaphor is displaced by another.¹⁴

This movement perceived not only across languages but also within languages is what I will try and develop here. Words travel, and etymology records their travel. One could almost

¹⁴ Adrian Forty: *Words and Buildings. A Vocabulary of Modern Architecture*. London: Thames and Hudson, 2000.

map their journey across countries. The word ‘space’ for example, he argues, should be seen in relation to the German *Raum*, where *Raum* means both space as extent, and the room, which one inhabits. Whereas space is a very abstract notion, room calls for materiality and physicality, it is finite, can be measured and built. This is a very important point and central to my research is the idea that space is both lived in and experienced but also can be abstracted and represented, as architects do, geometrically. There have been many theoretical discussions about what space actually is, and here I first and foremost call for an understanding of lived space, where the body is central to its apprehension, as described by Merleau Ponty:

L’espace n’est plus celui dont parle la Dioptrique, réseau de relations entre objets, tels que le verrait un tiers témoin de ma vision, ou un géomètre qui la reconstruit et la survole, c’est un espace compté à partir de moi comme point ou degré zéro de la spatilité. Je ne le vois pas selon son enveloppe extérieure, je le vis du dedans, j’y suis englobé. Après tout, le monde est autour de moi, non devant moi.¹⁵

But I also acknowledge that the same person, central to that space and which perceives the world around can also be surveyor and construct representations of the world. And indeed these positions are not contradictory, so long as we consider that our ability to use or practice geometry might be intrinsic to our body and is still an egocentric practice.

Coming back from school, a six year-old boy puts his hand straight up against his nose and says “We learnt about symmetry today. This is symmetry. We have two parts; and they’re the same”. Indeed. Physiologist Alain Berthoz explains that the vestibular organ, found in both our inner ears, was first described by Italian anatomist Scarpa in 1789.¹⁶ The organ itself, he goes on, constitutes an egocentric referential which measures the head’s movements and onto which is organised our perception of movement in space. The organ is made up of three canals, the horizontal canal is slightly angled at 20 degrees above our eye line, the other two being at 45 degrees with the vertical planes (one frontal cutting the body from side to side, the other sagittal, cutting the body from back to front). Both these sensorial organs either side of our body are thus three-axis organs, measuring our movement in an Euclidean referential system. Berthoz goes as far as to suggest that this particular arrangement might be at the origin of Euclidean geometry:

¹⁵ Space is no longer what it was in the Dioptric, a network of relations between objects such as would be seen by a witness to my vision or by a geometer looking over it and reconstructing it from outside. It is, rather, a space reckoned starting from me as the zero point or degree zero of spatiality. I do not see it according to its exterior envelope; I live in it from the inside; I am immersed in it. After all, the world is all around me, not in front of me. Maurice Merleau-Ponty: *L’Oeil et L’Esprit*. Paris: Gallimard, 1964. Trans. Carleton Dallery, ‘Eye and Mind’. In: James M. Edie (ed.), *The Primacy of Perception and other Essays on Phenomenological Psychology, the Philosophy of Art, History and Politics*. USA: Northwestern University Press, 1964.

¹⁶ Alain Berthoz: *Le Sens du Mouvement*. Paris: Odile Jacob, 1997.

Les canaux semi-circulaires de l'organe vestibulaire constituent un référentiel euclidien fondamental qui est peut être à la base de notre perception géométrique de l'espace. Nous l'avons vu, par sa structure même, il ne donne de référence que pour les mouvements propres du corps. C'est un système égocentré.¹⁷

Although, as Poincaré demonstrates in *La Science et l'Hypothèse*, Euclidian geometry is not the only possible one – and he describes for instance a world inhabited by circular beings, who would end up developing a spherical geometry to describe the world they live in - he argues that Euclidean geometry is by far the most convenient one for us to use:

Une géométrie ne peut pas être plus vraie qu'une autre; elle peut seulement être plus commode. Or la géométrie euclidienne est et restera la plus commode:
 1° parce qu'elle est la plus simple; et elle n'est pas telle seulement par suite de nos habitudes d'esprit ou de je ne sais quelle intuition directe que nous aurions de l'espace euclidien; elle est la plus simple en soi de même qu'un polynôme de premier degré est plus simple qu'un polynôme du second degré [...]
 2° parce qu'elle s'accorde assez bien avec les propriétés des solides naturels, ces corps dont se rapprochent nos membres et notre oeil et avec lesquels nous faisons nos instruments de mesure.¹⁸

I would add that this geometry is and will remain the most convenient, because it also seems to be in concordance with our own body constitution as Berthoz has shown.

For Poincaré, geometry is concerned with the study of movements, which has been made possible because a) we are capable of movement ourselves and b) we have been able to observe the movement of solids.¹⁹ This geometry is practiced in a geometrical space, which is continuous, infinite, has three dimensions and is homogeneous and isotropic.

Translation belongs to this group of movements. Translation is also a linguistic practice and essential relation between two languages, but as architectural historian Robin Evans writes in the opening paragraph of his essay *Translations from Drawing to Building*, lingual translation does not happen in a homogeneous and isotropic space:

To translate is to convey. It is to move something without altering it. This is its original meaning and this is what happens in translatory motion. Such too, by analogy with translatory motion, the translation of languages. Yet the substratum across which

¹⁷ The semicircular canals of the vestibular organ define a basic Euclidean frame of reference that may be at the root of our geometric perception of space. By its very structure, it provides a reference frame only for movements of the body. It is an egocentric system." Berthoz, *Le Sens*, p. 110, trans. Giselle Weiss: Alain Berthoz: *The Brain's Sense of Movement*. Cambridge, London: Harvard University Press, 2000, p. 100-101.

¹⁸ Henri Poincaré: *La Science et l'Hypothèse*. Paris: Flammarion, 1902, p. 76. "One geometry cannot be more true than another; it can only be more convenient. Now, Euclidean geometry is, and will remain, the most convenient: 1st, because it is the simplest, and it is not so only because of our mental habits or because of the kind of direct intuition that we have of Euclidean space; it is the simplest in itself, just as a polynomial of the first degree is simpler than a polynomial of the second degree; 2nd, because it sufficiently agrees with the properties of natural solids, those bodies which we can compare and measure by means of our senses." Trans. W.J.G: *Science and Hypothesis*. New York: Dover publications, 1952, p. 50 [first published in English by the Walter Scott Publishing Company Ltd., 1905].

¹⁹ Poincaré, *La Science*, p. 87.

the sense of words is translated from language to language does not appear to have the requisite evenness and continuity; things can get bent, broken or lost on the way. The assumption that there is uniform space through which meaning may glide without modulation is more than just a naïve delusion, however. Only by assuming its pure and unconditional existence in the first place can any precise knowledge of the pattern of deviations from this imaginary *condition be gained*.²⁰

This extract is testimony, if needed, of architects' irresistible tendency to linguistic spatial analogies. But the connection between language and space is more complex than that of an analogy; it is not merely a comparison but a correlative relationship.

In French, the word *translation*, although used in geometry and physics, is not used in linguistics anymore and has given way to the word *traduction* from Latin *traducere* "change over, convert," originally "lead along or across, transfer," from trans- "across" + ducere "to lead".²¹ The word *traducere* was introduced by Italian writer L.A. Bruni around 1400 and widely used in the second half of the XVth century and *traduire* has now completely replaced the verb *translater*. The primary meaning of 'translation' in French, is to move from one place to another. It is used in geometry, and physics. From my scientific and architectural background I associate the word *translation* with vectors and spatial transformations.

'Translation', for me, is thus not a linguistic transformation; 'translation' is primarily a geometrical transformation. In Euclidean geometry, a translation will simply move points from a point A to a point B without any distortion, in an isotropic space.

It is uncanny that the nature of what I am exploring has been made visible through the very *act* of translation of the word 'translation' from English to French. Translation has enabled me to highlight and discern mechanisms, which I would perhaps otherwise have been unable to articulate. The geographical distance between words has made those mechanisms, which also happen within a single language, visible.

Jakobson identifies three types of translation: the first one being intralingual translation or 'rewording', the second he calls interlingual translation or 'translation proper' and the third one intersemiotic translation or 'transmutation'.²² What I want to show here is that those three types of translation, including the intra- and interlingual translations are all *transformations*. Lecerle talks of 'operations' or 'calculus', but here I would prefer the term 'transformations', just like those happening in vector fields in physics or geometry, where

²⁰ Robin Evans: *Translations from Drawing to Building and other Essays*. London: Janet Evans and Architectural Association Publications, 1997.

²¹ Definition Douglas Harper: *Online Etymology Dictionary*. Accessed on 31/03/2011 on http://etymonline.com/index.php?allowed_in_frame=0&search=Translate.

²² Roman Jakobson: 'On Linguistic Aspects of Translation' (1959). In: Lawrence Venuti (ed.): *The Translation Studies Reader*. London & New York: Routledge, 2000.

entities are attributed values and transformed by a vector. Words are attributed arbitrary values, or assigned to signifieds in Saussurean tradition, which can be manipulated. So in effect, here I call for a *geometry of language*, which is particularly relevant to bilingualism.

4. The umbrella example

To explain some of the principles of bilingual geometry I will use a practical example: the umbrella. Following is an extract of Paul Auster's novel *City of Glass*, part of *the New York Trilogy*, where the protagonist talks about the inadequacy of language to describe the world he lives in:

‘You see, I am in the process of inventing a new language. With work such as that to do, I can't be bothered by the stupidity of others. In any case, it's all part of the disease I'm trying to cure.’

‘A new language?’

‘Yes. A language that will at last say what we have to say. For our words no longer correspond to the world. [...]

Consider a word that refers to a thing – “umbrella”, for example. When I say the word “umbrella”, you see the object in your mind. You see a kind of stick, with collapsible metal spokes on top that form an armature for a waterproof material which, when opened, will protect you from the rain.²³

When I read these lines, I don't see the kind of stick Auster is describing, instead I see a small black collapsible object, smuggled in most of Londoners' bags before they go to work every morning. When I read the word *parapluie* however, I see the cane-like variety my grandfather used to prop himself with when walking in the sun. So in 2004, I wrote a letter to Paul Auster, and sent 2 versions: one was addressed to his London publisher's house and the other to his publisher in Paris. Although I never got any reply, I did eventually meet the writer at a talk in Dun Laoghaire some seven years later and asked whether he had ever written in French; I knew about his translations of French poems. “No. Never” was his reply, “Only letters”. The exchange was brief. The response somehow puzzling. Never. Only letters. Letters did not seem to count as writing.

Since sending these letters I have been trying to further analyse why these associations with the word ‘umbrella’ came to mind and finally found some answers in Lecercle's definitions of *Brissetizing* and *Wolfsonizing*. *Brissetizing* comes from Jean-Pierre Brisset, described by Lecercle as a “delirious French linguist who apparently believed that man descended from the frog”.²⁴ Lecercle defines *Brissetizing* as a practice of Speculative Etymology or folk-

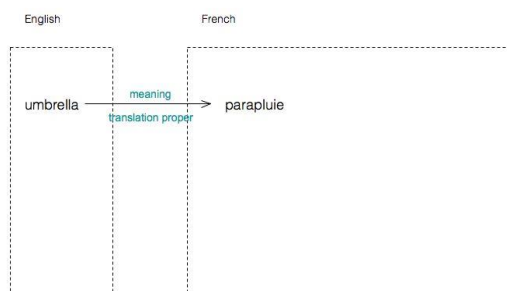
²³ Paul Auster: *The New York Trilogy*. USA: Penguin Books, 1990, p. 93.

²⁴ Lecercle, *The Violence*, p. 61.

etymology also called false etymology by Saussure, and multiple analysis. Brisset would analyse the same phrase using folk etymology not once but many times, hence deriving some uncanny meanings. Whilst Brisset pushes his literary practice to an extreme level, Lecercle argues that language Britessizes anyhow and illustrates this with an example:

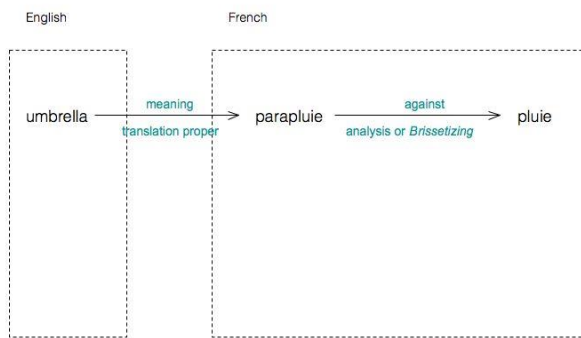
A ‘Chandail’ in French is a sweater. If I decided to Brissetize, he goes on, my most obvious choice would be to analyse the word into ‘Champ d’Ail’, a field of Garlic. This is demented, in other words popular etymology. What about true etymology? It will tell you that chandail is short for ‘marchand d’ail’, a garment typical of garlic sellers.²⁵

Wolfsonizing Language comes from Louis Wolfson, a schizophrenic writer who could not bear to write in his mother tongue and systematically translated the English words into other languages according to sound, in other words, using homophony or connotation. Translation according to sound is also called *traducson* in French, which is a portmanteau word from *traduction* (translation) and *son* (sound). In his book Lecercle calls for these practices to be considered again and not simply dismissed as mere marginal fantasies or *linguistique fantastique*. Using the umbrella example, I will try and show that the practices of *Brissetizing* and *Wolfsonizing* are common practice amongst bilingual speakers. Both make visible a geometrical process of associations and transformations. To this purpose I will use a diagram and map out the various transformations. If I translate the word ‘umbrella’ into French, I get *parapluie*, this is what Jakobson calls ‘translation proper’ from English to French.

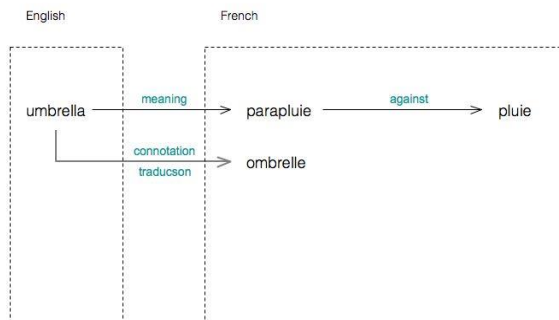


²⁵ Lecercle, *The Violence*, p. 62-63.

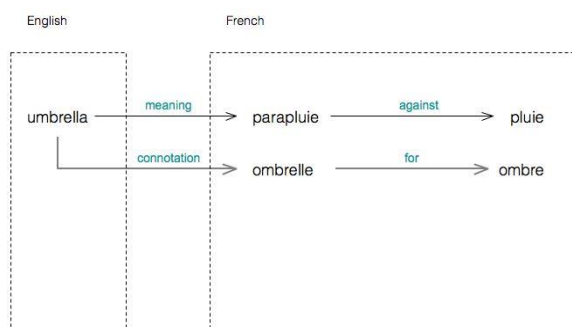
Etymologically, *parapluie* comes from *para-* (against) and *pluie*, (rain).



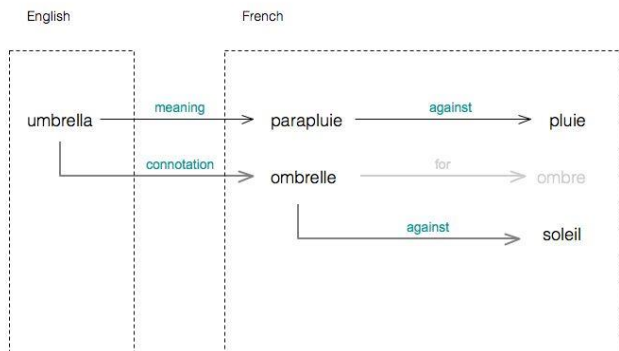
But Umbrella sounds very similar to the French word *ombrelle*, and here I either use Wolfson's *traducson* or Brisset's folk etymology to transform *umbrella* into *ombrelle*.



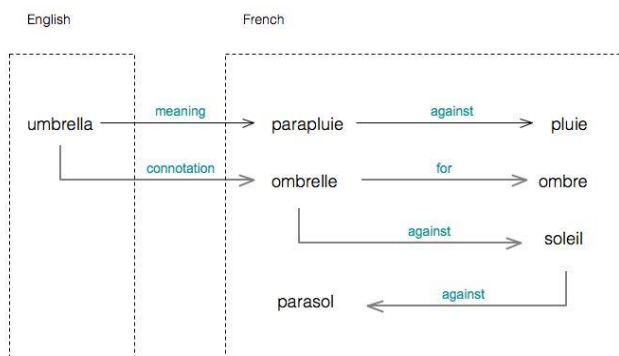
The *ombrelle* creates *ombre*, or 'shade'.



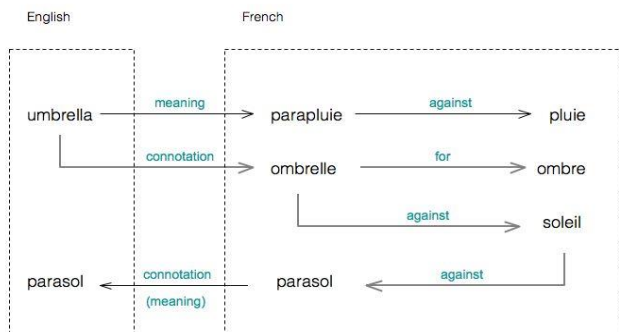
But because of the earlier transformation I made from *parapluie* to *pluie*, I will apply another transformation to the word *ombre* and turn it into its opposite. I do this because I applied an opposition vector earlier with *para*, against. Similarly *ombre* becomes *soleil* or 'sun',



And by applying the reverse transformation once more *soleil* becomes *parasol*, against the sun.

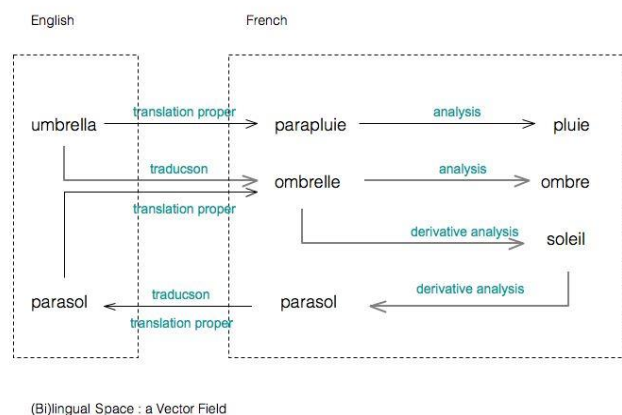


Now this word still belongs to the French lexicon, and *parasol* in France is of the large kind, the type you find over garden tables. The small handheld protection device against the sun is the *ombrelle*. The word *parasol* also belongs to the English vocabulary, so I can translate the word from French to English by homophony.



As it happens it is also a ‘translation proper’ as ‘parasol’ in English is a shading device one might

find over garden tables, but ‘parasol’ also translates, and here it is a ‘translation proper’, into *ombrelle*.



Note that umbrella and parasol now entertain a very interesting and complex relationship. Etymologically umbrella does not come from France though, but from Italy and the word *umbrello*, or sunshade. This diagram now shows the numerous transformations words undertake, all of which I consider to be translations where the operators, or vectors may vary. This ensemble of vectors constitutes what I call the *bilingual vector field*, or *bilingual space*.

A very important point here is that we are able to proceed with these geometrical transformations only because we can assess our relative position to these words and effectively enact the journeys between them. The understanding of these geometrical transformations is still egocentric and very much rooted in our body as Poincare explains :

Supposons un corps solide occupant d’abord la position α et passant ensuite à la position β ; dans sa première position, il causera sur nous l’ensemble d’impressions A, et dans sa seconde position l’ensemble d’impressions B. Soit maintenant un second corps solide, ayant des qualités entièrement différentes du premier, par exemple de couleur différente. Supposons encore qu’il passe de la position α , où il cause sur nous l’ensemble d’impressions A’, à la position β , où il cause sur nous l’ensemble d’impressions B’.

En general l’ensemble A n’aura rien de commun avec l’ensemble A’, ni l’ensemble B avec l’ensemble B’. Le passage de l’ensemble A à l’ensemble B et celui de l’ensemble A’ à l’ensemble B’ sont donc deux changements qui en soi n’ont en general rien de commun. Et cependant, ces deux changements, nous les regardons l’un et l’autre comme des déplacements et mieux encore, nous les considérons comme le même déplacement.

Comment cela se fait-il?

C’est simplement parcequ’ils peuvent être l’un et l’autre corrigés par le même mouvement corrélatif de notre corps.

C’est donc le “mouvement corrélatif” qui constitue le seul lien entre deux phénomènes qu’autrement nous n’aurions jamais songé à rapprocher. ²⁶

²⁶ Suppose a solid body to occupy successively the positions α and β ; in the first position it will give us an aggregate of impressions A, and in the second position the aggregate of impressions B. Now let there be a second solid body, of qualities entirely different from the first – of different colour, for instance. Assume it to pass from the position α , where it gives us the aggregate of impressions A’ to the position β , where it gives us the aggregate of impressions B’. In

In other words Poincaré explains that if we understand the movement of translation, it is only because we are able to simulate the movement our own body would have to make to move from one place to the other. He does not mean merely visualising this movement, but to recall the efforts our muscles would have to engage in to physically move from one point to the other. Thus our muscular sensations would allow us to understand space and movement. He distinguishes the *geometrical space* (Euclidean being one of them, isotropic, homogeneous etc.) to the *representative space*, which is made of the visual, tactile and motor spaces. The term ‘representative’ can be misleading however, as the space he describes is less concerned with representation and more with perception and sensations, which all contribute to our understanding, and grasp, of the space around us. If the movement of objects is thus perceived and accompanied by the correlative movement of our own body, one might wonder whether one actually recreates this muscular effort when moving words from one language to the other, from one country to the other. Furthermore, what happens when the body is in movement as well?

Poincaré’s visionary theory has now been reinforced by Alain Berthoz’s neurological studies in *Le Sens du Mouvement*,²⁷ which I will not be able to describe here. I will only make note of the English title *The Brain’s Sense of Movement*, which I think fails to convey one of the main points that the French title did convey. The word *brain* was added because of a yearning for clarity and disambiguation in English language and academic writing in general, and to indicate that the book is about neuroscience. But in fact it seeks a philosophical position or proposition, reaching beyond the brain’s matter and mechanisms, suggesting that the sense of movement may be a 6th sense, which we could add to vision, hearing, smell, taste, and touch. This sense of movement involves our entire body – not only the vestibular organ - and allows us to understand our own as well as movements of external objects and beings. It does not obviously relate to a clearly identifiable organ - like the eye would be to vision, the ear to hearing, the nose to smell, the tongue to taste and the skin to touch – and involves the coordination of several sensations and interactions. The sense of movement is complex and if we understand movement and translation it is because we are capable of movement ourselves.

The recent work of writer and neuroscientist Mickkel Wallentin at the Centre for Semiotics in

general, the aggregate A will have nothing in common with the aggregate A’, nor will the aggregate B have anything in common with the aggregate B’. The transition from the aggregate A to the aggregate B, and that of the aggregate A’ to the aggregate B’, are therefore two changes which ‘in themselves’ have in general nothing in common. Yet we consider both these changes as displacements; and, further, we consider them the ‘same’ displacement. How can this be? It is simply because they may be both corrected by the ‘same’ correlative movement of our body. “Correlative movement”, therefore, constitutes the ‘sole connection’ between two phenomena, which otherwise we should never have dreamed of connecting. Poincaré, *La Science*, p. 86 (trans. p. 61-62). In this extract I would personally replace the words ‘dreamed of’ with ‘thought of’ and also the word ‘aggregate’, which sounds like a mix for concrete, with the word ‘ensemble’ or ‘combination’.

²⁷ Alain Berthoz: *Le Sens*, 1997.

Aarhus University potentially opens up new territories for *embodied bilingualism*. Wallentin has studied the impact of words bearing spatial meaning onto our brain activity.²⁸ The research identifies some interesting cognitive patterns, where the brain uses some of its ‘space processing’ areas to process language, instead of the usual ‘narrative processing’ areas found in the Broca area of the brain, when using spatial language in a metaphorical manner as opposed to a physical one, suggesting that the brain does indeed proceed to ‘enacting’ the journey that the language only suggests. One can only speculate at this stage as to the sort of journey the bilingual migrant might be subject to on a daily basis and I certainly hope, as a bilingual speaker myself, to explore the matter further.

²⁸ Mikkel Wallentin, Svend Østergaard, Torben Ellegaard Lund, Leif Østergaard, Andreas Roepstorff: Concrete Spatial Language: See What I mean? In: *Science Direct* (2004). Also published in: *Brain and Language* 92 (2005), p. 221-233.