

## **Multilingualism in cyberspace: conceptualising the virtual linguistic landscape**

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*(Received 11 January 2008; accepted 23 October 2008)*

The linguistic landscape (LL) is a sociolinguistic concept that captures power relations and identity marking in the linguistic rendering of urban space: the city read as text. As such, LL is embedded in the physical geography of the cityscape. However, with the increasing scope of multilingual capabilities in digital communications, multilingual options and choices are becoming more prevalent in virtual space.

These virtual linguistic voices are important forces in global language ecology. In this paper, the concepts of virtual linguistic landscape and linguistic cyberecology are delineated and exemplified in a variety of Web 1.0 and Web 2.0 applications and environments. It is argued that the LL of virtual space, though grounded in the concept of multilingual interactions within a physically defined world, has distinct characteristics to the digital world that continue to evolve conterminous with the complex relationship of the real to the digital.

**Keywords:** linguistic landscape; multilingualism; language contact

### **Introduction**

The aim of this paper is to extend and reconceptualise the sociolinguistic discussion of linguistic landscape (LL) from its embedded physicality in what Negroponte (1995) refers to as the world of atoms to the increasingly multilingual character of virtual space, where the virtual linguistic landscape (VLL) encompasses characteristics distinct to its world of bits (Negroponte, 1995) as well as those adapted from physical referents.

We see the World Wide Web (the Web)<sup>1</sup> as a metaphor for the intricate network of human communications created in digital space. In this parallel world, bits, technology and digital media, including cyberspace, are seen as an extension of our physical selves (Clark & Chalmers, 2002; McLuhan & Gordon, 2003). As individual languages coexist in the ontology of machines and digital signals, they influence one another and undergo changes, constituting a unique linguistic cyberecology.

In this article, the term virtual space is used to refer to computer-mediated communication, which takes place primarily on the Web (via browser interface), but also extends to online role-playing software, such as Second Life (SL). In these digital

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and virtual environments, multilingual communication has already begun to shape a discrete LL, analogous to the LL grounded in physical geography.

As distinct communication codes, individual languages, besides their linguistic functions, symbolic and informational (Landry & Bourhis, 1997), are also semiotic markers, indicative of sociolinguistic and socio-political relations. As an important dimension of language policy and planning in an increasingly globalised world, we argue, the analysis of different aspects of VLL, from sociolinguistic to political to cognitive, deserves scholarly attention.

An analysis of selected websites and statistics of Internet usage per language, as well as a number of Web 2.0 social computing applications including SL, Youtube and Wikipedia, are used to illustrate the concept of VLL and its place in the current socio-political and sociolinguistic discourse. The goal of this article is to map out the possibilities for research, both conceptual and empirical, of multilingualism in cyberspace within the LL framework, drawing theoretical links from sociolinguistics, pragmatics, cognitive linguistics and philosophy of mind. Statistical information is presented in support of existing and future trends; the various examples presented serve to connect multilingual usage in physical and virtual space.

### **Conceptualising the linguistic landscape (LL) of virtual space**

#### ***Linguistic landscape (LL)***

As a sociolinguistic concept, LL has a recent history. In current sociolinguistic discourse, specifically in the contexts of language policy and language planning, LL is used to characterise and analyse multilingual signage in public spaces and its role in defining the socio-political and sociolinguistic character of a given territory (Backhaus, 2007; Gorter, 2006; Landry & Bourhis, 1997; Shohamy, 2006; Spolsky & Cooper, 1991). LL research has been conducted in Jerusalem (Ben-Rafael, Shohamy, Amara, & Trumper-Hecht, 2006; Spolsky & Cooper, 1991), Montreal (Landry & Bourhis, 1997), Brussels (Tulp, 1978; Wenzel, 1996), Basque Country (Cenoz & Gorter, 2006), Bangkok (Huebner, 2006), and Netherlands (Edelman, 2006; Gorter, 2006), all of which are recognised for their multilingual and multicultural characters. LLs have also described areas that are more linguistically and culturally homogenous in character, including Jordan (El-Yasin & Mahadin, 1996), Tokyo (Backhaus, 2007), and Ljubljana (Schlick, 2002).

Since the primary concern of LL is multilingual signage in modern-day metropolises, a more precise term would be linguistic cityscape (Gorter, 2006, p. 2) to capture the role that a language mix plays in revealing existing power relations, as well as forming views and opinions within the confines of urban settlements. Typically, texts and other markers of multilingualism on street signs in larger cities (such as Bangkok, Brussels, Jerusalem, Montreal, Tokyo) have been analysed in the majority of the research done under the terminological umbrella of LL. Gorter (2006, p. 1) quotes the work of Sciriha and Vassalo (2001) and Kreslins (2003) regarding the use of LL in a more general sense 'for the description and analysis of the language situation in a certain country...or for the presence and use of many languages in larger geographical areas (e.g. the Baltic area)'. Reagan (2002) offers a critical perspective on language and linguistic issues in the context of classroom multilingualism. As an established sociolinguistic term, however, LL denotes the phenomenon whereby different languages interact within a shared physical space to

converge, change, and reflect existing power relations, and, in so doing, to affect views, opinions and perceptions (Shohamy, 2006).

***From physical to virtual landscape: linguistic landscape (LL) to virtual linguistic landscape (VLL)***

LLs describe the languages that define public spaces. Analogous to the physical LL, the virtual LL serves to delineate the linguistic community and to mark language status in expressed power relations among the coexisting linguistic choices in the cyberspace community. The VLL describes the linguistic cyberscape just as the LL describes the linguistic cityscape. In this way, the VLL functions as an identity marker, providing choice in textual access and expression.

Typical markers of LL in cityscapes, such as public signs, delineating such information as street names, parking options, and public transport stops as well as commercial signs identifying shops, are relatively stable over time. Repairing or replacing these signs involves time, material and labour costs. However, web content may be updated daily or more often; and whether a routine update or a substantial reprogramming of a web page, it is a much less expensive renovation. Consequently, the linguistic content indicating ownership, identity, and laws used in physical landscape signage is, by nature, more fixed and stable than that available to the VLL.

The cityscape does include signs that are more transitory in nature, including revolving commercial materials, such as billboards for goods and services and entertainment posters; seasonal public notices, such as building permits and roadworks; and recyclable materials, such as political and business notices. These artefacts are features of the LL that have a limited residual value within their physical milieu. The VLL has more in common with the rotating content on physical billboards than with stationary signs because websites are cheaper and easier to maintain, develop and expand.

The LL is immersive: the individual enters and exits, functions, and may even reside within the physical territory, interacting linguistically within demarcated spatial boundaries, whereas the VLL is delocalised: anyone can enter and engage within virtual space from anywhere as, for instance, in SL. So a salient difference between the virtual and physical LL relates to stability and transience. No one inhabits the digital dimension, though those who regularly engage in digital communication may identify with specific communities of practice (Lave & Wenger, 1991; Wenger, 1998). Thus, explicitly targeting a local population, which signage in physical space does, is not a limitation in virtual space, though specific online communities can control and restrict membership, creating a more delineated community.

Language choices in the VLL do implicitly invite an audience, but virtual environments can innovatively repackage and reposition languages in an unfolding universe of new interactive possibilities, creating a linguistic ecology that is not representative of the physical world. For instance, languages described as *dead*, such as Latin, can be learned and used in online conversations.<sup>2</sup> Nonetheless, despite the fact that websites are more linguistically dynamic in character than their physical counterparts and multilingual ecologies can be unrepresentative of spoken language worlds, the individual's linguistic choices in VLL are still shaped by the environment, though translation assistance is easily accessible, if not very accurate (see, for example: <http://babelfish.altavista.com/>).

### **Evolving Internet worlds**

The vision that I have for the Web is about anything being potentially connected with anything. (Berners-Lee & Fischetti, 2000, p. 1)

#### ***A metaphoric portal***

The parallel, digital world of bits is conceptually grounded in the physical world. Reading and writing in digital space grew out of known physical paper and pencil practices, evolving within the constraints and possibilities of new media environments (cf. Baron, 2000; Crystal, 2006; Kress, 2003). Analogously, the presence of different languages and their interaction in virtual space in many ways reflects the functions of LL in the tangible world. The concepts cyberspace and cybergeography, for instance, are conceptual metaphorical bridges between these two worlds. According to Lakoff and Johnson (1980), the cross-domain correlations from our experience and persistent use of a particular metaphor may create perceived similarities.

Virtual reality is described by metaphors coined from the physical world, such as *information highway*, *chat room*, *discussion forum*, *virtual tour*, and *website*. An Internet user might *surf* the net, *lurk* in a chat room, *SHOUT* (*using all capitals*) in an email, or *visit* a virtual art gallery, though none of these physical actions is possible. A potentially harmful computer program is called a *virus*; and information displayed on a screen is called a *page*. Such metaphors indicate that we transfer lived experiences onto the virtual domain. They enable the user, particularly, the novice, to interact with the virtual domain based on familiar experiences from real world domains. Metaphorical transfer of meaning from real to virtual contexts raises essential questions as to what extent our perception of virtual space is influenced by our embodied experience in the physical world. According to Maglio and Matlock (1998), there are important similarities between real and virtual domains, signalled by these metaphors, and, consequently, between the physical and VLL.

#### ***Web 1.0: the Internet***

Since Tim Berners-Lee, a British researcher at CERN (the research centre for particle physics) near Geneva, introduced the World Wide Web in 1991, human communication has undergone a seismic shift. The way people do business and research, exchange information, advertise and entertain themselves has changed irreversibly. Berners-Lee started with a vision of the web which 'would not be an isolated tool used by people in their lives, or even a mirror of real life; [but] part of the very fabric of the web of life we all help weave' (Berners-Lee & Fischetti, 2000, p. 91). He synthesised several revolutionary concepts radically altering the way humans manipulate and disseminate information: the Hypertext Transfer Protocol (HTTP), a communications protocol which facilitates data transfer on the Web; the Hypertext Markup Language (HTML), tag-based language used to create web pages; and universal resource identifier (URI), a virtual address in the form of a compact character string which points to the physical address of a digital document. Standardisation<sup>3</sup> of each of these specifications central to the Web increased its interactivity, portability, interoperability and overall usability. Computers in this inceptive stage of networking could talk directly to one another; and with a point and click, instantaneously access an enormous amount of information. However, existing

technology and the web browsers were not able to offer the more collaborative approach visualised by Berners-Lee, which he noted, ‘required much more of a social change in how people worked’ (Berners-Lee & Fischetti, 2000, p. 57).

### ***Web 2.0: social computing***

That change did happen with the almost parallel developments of Semantic Web (Berners-Lee & Fischetti, 2000) and Web 2.0 (O’Reilly, 2005). The fundamental idea behind the Semantic Web is to supply data with descriptors or tags, and in turn define relations with other data through conceptual linking of tags. On the existing hypertext layer, the Semantic Web technology adds a layer which consists of metadata and automated, context-driven data manipulation to connect data from different linguistic and cultural domains. Coupled with the introduction of browsers, which enable users to interact with text and images from an ever-growing pool of information, the Web soon became the premium medium of finding and sharing information in different languages. The Semantic Web, integrated with emerging online social-networking systems, termed Web 2.0, such as blogs, MySpace, Youtube, Flickr and Wikipedia, is ideally posed to promote multilingualism. File sharing and collaborative content authoring are arguably the most significant features of Web 2.0. Compared to its first stage of development, retroactively called Web 1.0, Web 2.0 offers multilingual users much better opportunities for multilingual interaction and exchange, even within a single communicative discourse.

### **Multilingualism online**

#### ***Multilingualism in Web 1.0 environments: commercial advertising***

Web 1.0 manifestations of static but hypertext linked advertising – analogous to billboards – provide multiple configurations of multilingualism. Figure 1.1, an



Figure 1.1. *Complementary multilingualism: travel advertisement.*<sup>3</sup>

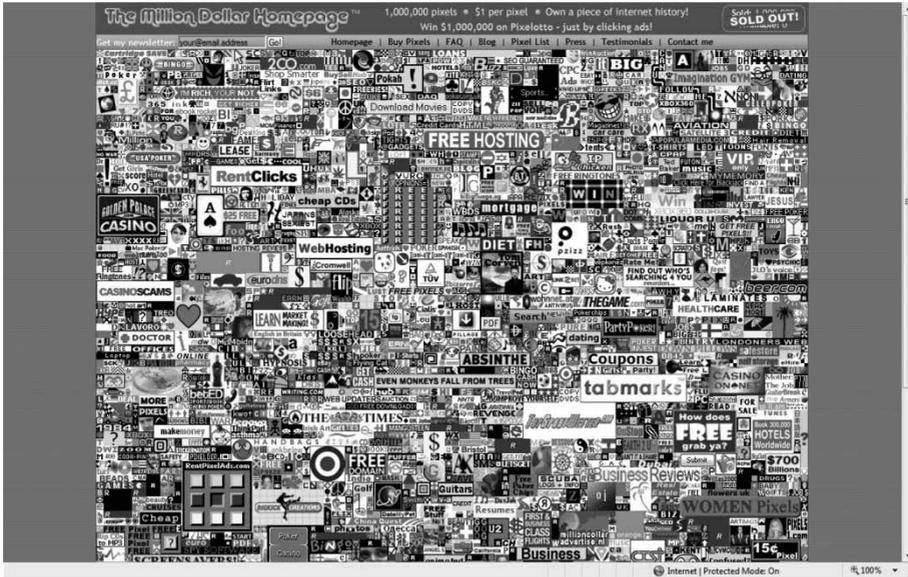


Figure 1.2. *Fractional multilingualism: Web billboard.*<sup>6</sup>

English–Spanish advertisement, illustrates *complementary multilingualism* (in this example, bilingualism). In this case, a hybridised discourse available to speakers of the component languages is created through code mixing. The contextual clues provided by linguistic means (e.g. use of the cognate past participial form ‘included’ in English), or graphical clues (e.g. the cloud wearing sunglasses posing a question to a cloud not wearing sunglasses). Additionally, the question is written using a single question mark as opposed to the double question mark conventionally used in

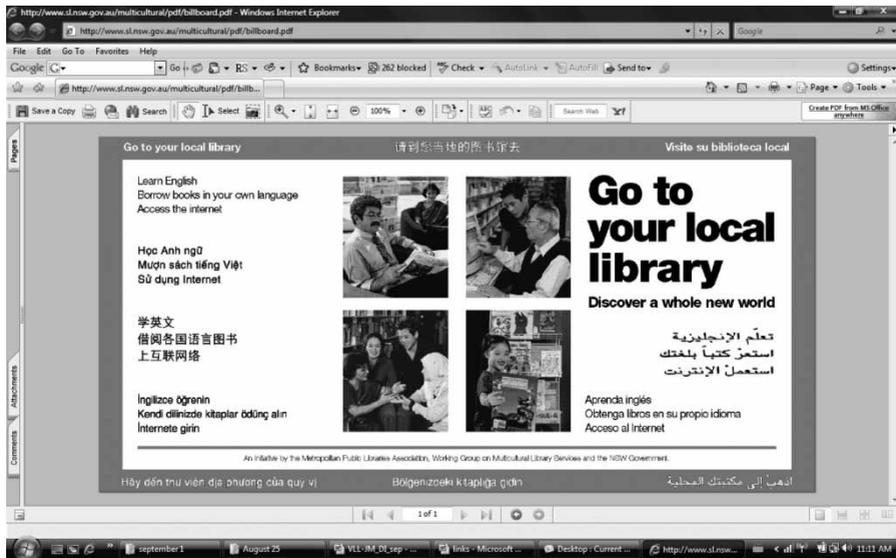


Figure 1.3. *Multilingual service: digital library public service advertisement.*<sup>7</sup>



Figure 1.4a. *Multilingual accessibility: IKEA.*

Spanish. This reading of multilingualism is as a blended community: a halfway point readable by Anglophones entering a space identified linguistically as Hispanic.

The digital board shown in Figure 1.2 illustrates a *fractional view of multilingualism*: literally, multiple languages accessible via jigsaw pieces within a shared space. In this advertisement, pixels displaying logos with hypertext links are sold for \$1.00 per pixel. One link in German, for example, leads to an Austrian site – *A Milliondollar Page exklusiv für Österreich*<sup>4,5</sup>; another, leads to a site with information on the Ukrainian city of Odessa, in Russian.<sup>6</sup> The linguistic cyberspace in fractional multilingual environments is a portal to linguistically identified communities.

In the example depicted in Figure 1.3, a digitised library announcement provides information in Arabic, Chinese, English, Turkish, Vietnamese, and Spanish, indicating *multilingual service*. The choice of languages used, which does not include major languages such as French and German, indicates that the physical library advertised specifically caters to readers of these five languages. The VLL, in this instance, announces a physical referent.

The fourth embodiment of multilingualism online, exemplified in Figures 1.4a and 1.4b, is *multilingual accessibility*. In this reading of multilingualism online, the



Figure 1.4b. *Multilingual accessibility: Cathay Pacific.*

choice of languages available to the user is still grounded in the physical cultures of the anticipated market. However, the languages used do not reference a single physical multilingual institution, as in Figure 1.3.

These examples show how languages are juxtaposed and spliced in Web 1.0 commercial environments to invite particular linguistic communities in hybridised *complementary multilingualism*, create a linguistic portal through bricolage using a *fractional view of multilingualism*: indicate *multilingual service*, and provide *multilingual accessibility*.

### *Multilingualism in Web 2.0 environments: social networking*

The Web, as it has evolved into Web 2.0, offers more democratic opportunities in authoring and authority: sites can be created and revised through multilateral editing using Wiki software, e.g. the Wikipedia, or content sharing websites, e.g. Youtube or Flickr. Web 2.0 conversations create spaces for multilingual social networking where real and virtual identities are shaped, asserted and affirmed. Given the flexibility of Web 2.0 access and interaction, virtual content can more dynamically reflect ‘real-time’ socio-political relations.

Figures 2.1 and 2.2 exemplify a multilingual exchange on the Web 2.0 social networking site: Youtube. Figure 2.1 depicts a Finnish language version of the Serbian song, *Molitva* (‘Prayer’ in English and ‘Rukoilen’ in Finnish), winner of the Eurosong 2007 contest in Helsinki, Finland, which was originally performed in Serbian.

In Figure 2.2, comments on the song are posted on Youtube in Finnish, French, English, Serbian/Croatian, Russian and Slovene. The participants of this hybridised multilingual discourse engage in code-switching under the assumption that one or more languages are shared by the present or potential interlocutors – an interactive *complementary multilingualism*. In addition, what characterises this discourse is the

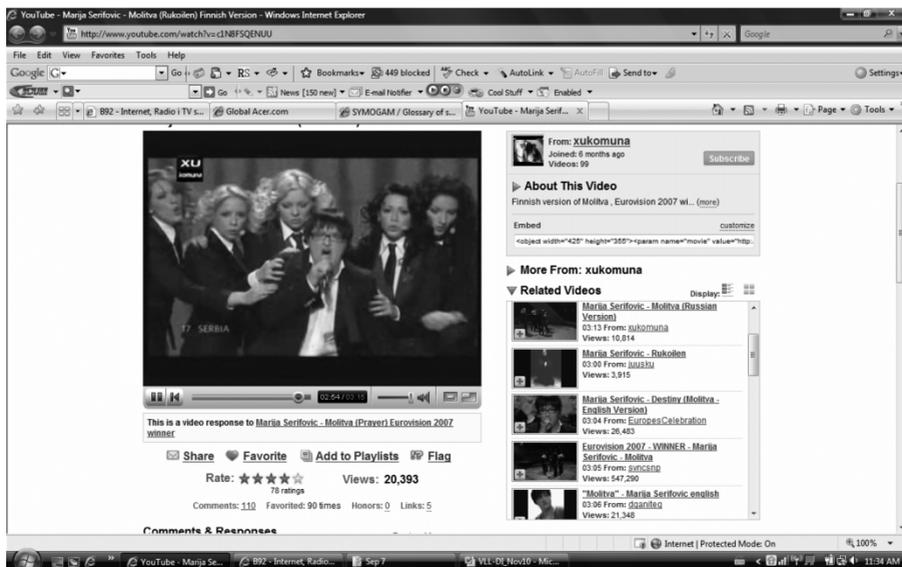


Figure 2.1. Multilingual discourse on Youtube – The 2007 Eurosong Contest winner.

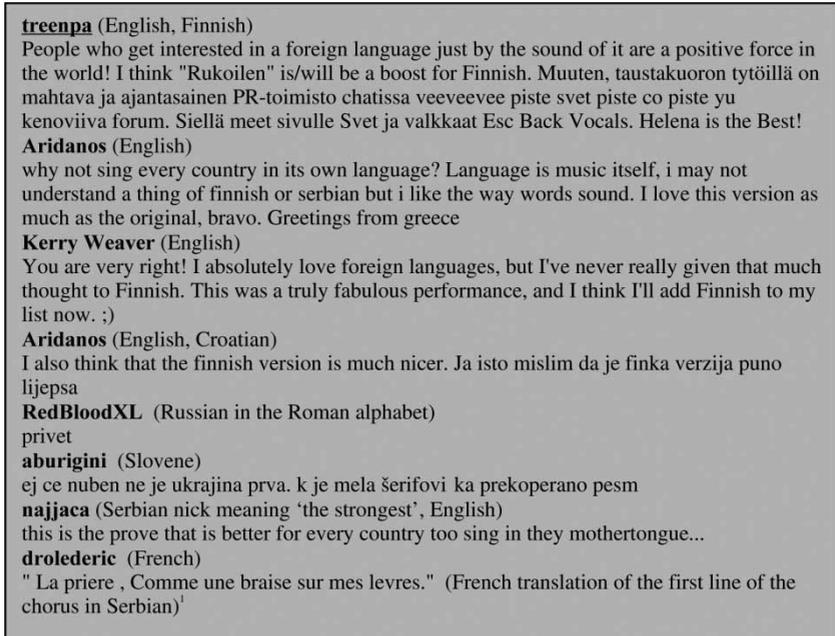


Figure 2.2. Multilingual comments on a Serbian song posted on Youtube.

expression of attitudes towards the use of national languages in the competition and the global linguistic dominance of English.

As illustrated in this example of multilingual discourse on Youtube, bilingual and multilingual speakers of different languages create an uninterrupted stream of interlinguistic communication. In VLL, the message, both informative and connotative or symbolic, is communicated effectively and efficiently, reaching the interlocutors in a matter of seconds.

### ***Multilingualism in Web 2.0 environments: parallel communicative worlds***

At the same time as the Web brings together the corners of the globe, we are also witnessing the appearance of parallel and relatively autonomous virtual worlds. A virtual ontology, called SL claimed 14.5 million virtual citizens as of 1 August 2008 with 1.2 million logged in during last 60 days.<sup>7,8,9</sup> SL has its own currency, which can be traded for US dollars in an increasing number of business transactions, from virtual language classrooms to shopping malls to land purchasing to gambling (until August 2007, when gambling in SL was banned by the US government). Members are represented by avatars, their virtual incarnations which<sup>10</sup> socialise, play and conduct business in SL. Singer/song-writer Suzanne Vega, or rather her avatar, performed 'live' on SL in 2006, and in July 2007, William Gibson, who coined the term 'cyberspace', made a guest appearance in SL to promote his new novel: *The spook country*. Avatars, graphical representations of Internet users, called 'residents', become increasingly embodied in the environment: virtual extensions of the SL residents, they move and talk within a defined domain. They have a right of entry to public spaces and limited access to private areas, similar to physical spaces or landscapes.

Although, English is the main language in SL,<sup>11</sup> communication in other languages is increasing. For example, Figure 3 depicts a ‘German speaking’ virtual island dedicated to providing assistance to new residents whose first language is German displaying a note from the *Deutsche Notecard Rucksack*. From this island, you can be teleported to the German-speaking Orientation Island (*Orientierungs-Inseln*) by a mere point and click of your mouse. Other linguistic and cultural artefacts are the flags of Germany, Switzerland and Austria, as well as an image of a German *Schloss* (castle) on the Kiosk with the sign ‘*Willkommen*’. Inside, a number of German and non-German speaking avatars are interacting.

Modes of communication in SL include writing/typing, voice-enabled messaging and gesturing, similar to communication in the physical landscape. The ‘residents’ inhabit islands, which in the physical world are often a metaphor for isolation and non-interaction, but in SL represent specialised communities of practice as bearers of creative individualism, communicating amongst themselves seamlessly through teleporting, encouraged through information postings and context-driven messages.

### Linguistic cyberecology

The sheer volume of online communication makes the Internet a significant factor in maintaining the delicate balance of global language ecology. Norwegian-American sociolinguist Einar Haugen (1972, p. 325) is credited as the first to use the term ‘ecology of language’, claiming that ‘[l]anguage exists only in the minds of its users and it only functions in relating these users to one another and to nature, i.e. their social and natural environment’. More recently, Nettle and Romaine (2000, p. 13)

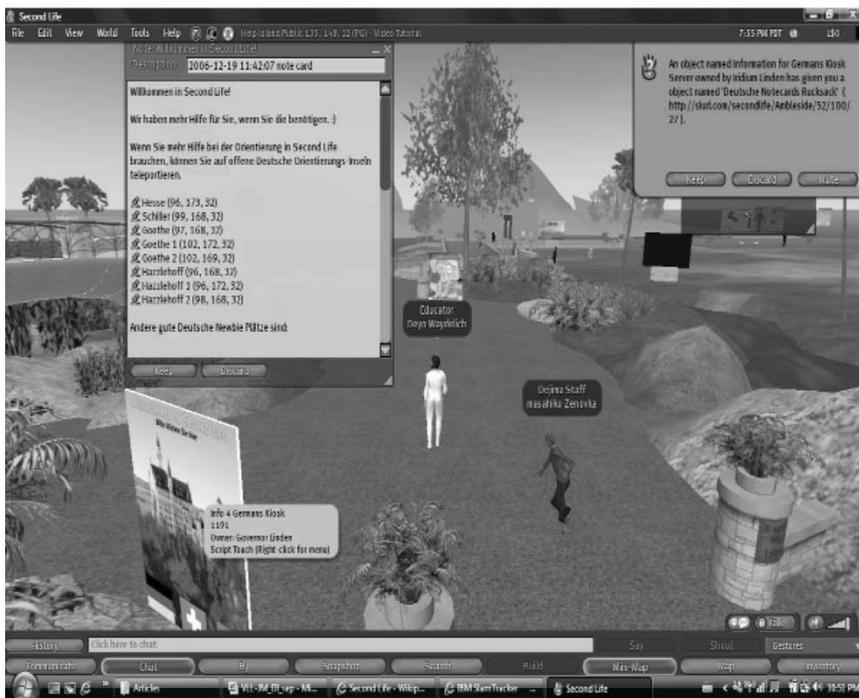


Figure 3. Second Life *Deutsche Orientierungs-Inseln*.

have coined the term ‘biolinguistic diversity’ to describe ‘the rich spectrum of life encompassing all the earth’s species of plants along with human cultures and their languages’. They, along with a number of prominent scholars have published startling reports over the past decade warning of the world’s rapidly diminishing linguistic diversity (Crystal, 2000; Dalby, 2002; Nettle & Romaine, 2000; Skutnabb-Kangas, 2000).

Extended to the realm of virtual space, no language can be viewed as independent of its environment: biological or digital, local or global, micro- or macro-linguistic. More than ever before, languages that are both genetically related and unrelated coexist and communicate within a single plurilingual virtual habitat on a global scale, in deterritorialised digital space. Linguistic cyberecology is a phenomenon specific to the digital age, centred on human–computer interaction. In cyberspace, languages vie for space and use; languages are in social and political contact, and in ecological balance.

Hybridity is inevitable in a multilingual world brought together online where the *invisible* graphic interface is a programming language that is built using the Roman alphabet. Authentic language use online includes hybridised codes, scripts, and conventions (Lotherington, 2005); examples are mixed orthographies (Ɖʏ ×Rainč), including alphanumeric constructions (b4; 2nite; gr8); paralinguistic communication, such as :;) :@ (\*.\*), and online names with no spoken analogues (&\*\*^(^))&%() (Lotherington & Xu, 2004); as well as code-switched conversational text, e.g.:

fakalofa atu ma tau toa dont seem 2 hear n e  
 lines of da 2apa crew where u at brodaz  
 cum on guyz itz time for us 2 b heard in dis  
 little music forum hah.  
 this is somale a.k.a tama yia where u at 2apa  
 fellaz holler at me k. (Sperlich, 2005, p. 58)

### ***Language dominance online***

The lingua franca of the electronic universe is English, as can be seen in Tables 1 and 4, and though it continues to grow in online popularity, other languages are catching up. Opportunities for multiple language access and exchange are increasing thanks to multilingual pages and online translators, and though these mechanisms tend to represent selected major world languages, they do challenge the cybercolonial force of English.

The presence of languages online is deeply affected by physical access to technology; unequal access creates a digital linguistic divide. At the same time, cyberspace opens up corners for languages with small speech communities to become visible as participants in the global arena of online communication (cf. Sperlich, 2005).

Web usage statistics from sites such as Meta Wikipedia,<sup>12</sup> indicate the linguistic reach of individual languages in VLL. Table 1 shows that English ranks first in the number of articles per language, as well as in the number of Internet users per language (Table 2). Interestingly, relative to the number of speakers per article,<sup>13</sup> which can be classified as typically productive usage, English ranks sixth (Table 3).

Table 1. List of Wiki articles per language (productive web usage).

No.	Language	Language (local)	Articles
1	English	English	1,607,641
2	German	Deutsch	534,595
3	French	Français	435,182
4	Polish	Polski	341,951
5	Japanese	日本語	319,680
6	Dutch	Nederlands	268,015
7	Italian	Italiano	239,046
8	Portuguese	Português	235,606
9	Swedish	Svenska	206,424
10	Spanish	Español	194,873
11	Russian	Русский	132,022
12	Chinese	中文	110,249

What can also be observed is the dominance of European languages, whereby the only two non-European languages among the first 12 are Chinese and Japanese (Tables 1 and 2). On the other hand, in overall usage, both receptive and productive, Chinese, Japanese, Korean and Arabic speakers occupy prominent positions.

Curiously, Polish ranks fourth in the number of Wiki articles, well before Russian, which has vastly more speakers. Also of note, a number of languages commonly taught in schools as foreign languages worldwide are listed in Table 1 (English, German, French, Spanish, Russian, Italian, Japanese, and Chinese), which omits several prominent languages based on number of speakers, such as Arabic, Bengali and Hindi/Urdu (see <http://www.ethnologue.com/> for delineated information on number of speakers worldwide).

Table 4 shows historical changes in Internet usage per language between January 2008 and May 2008.<sup>14,15,16</sup> During this period, the biggest increase is reported for

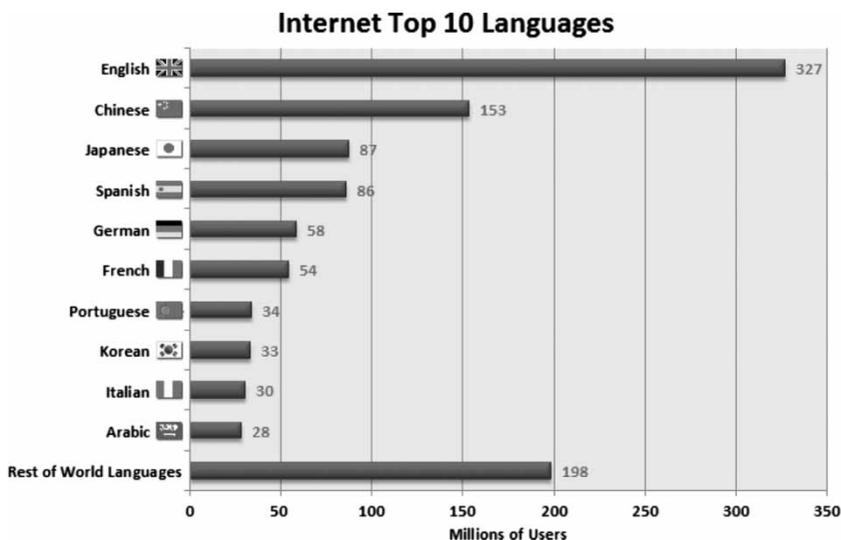
Table 2. Top 10 Internet users by language.<sup>13</sup>

Table 3. List of Wikipedias by speakers per article.<sup>14</sup>

No.	Language	Language (local)	Articles
1	Swedish	Svenska	184,618
2	Dutch	Nederlands	229,637
3	Polish	Polski	300,226
4	German	Deutsch	471,674
5	Italian	Italiano	199,647
6	English	English	1,405,452
7	French	Français	367,536
8	Japanese	日本語	264,434
9	Portuguese	Português	192,318
10	Russian	Русский	108,340
11	Spanish	Español	155,920

Arabic, Chinese and Spanish: 144.29%, 26.63%, 23.26%, respectively. The steep jump of Internet usage among the speakers of these three languages can be explained by a sharp increase in technological advancements and digital literacy in Arab, Latin American countries, and China. However, what is surprising is the moderate increase of Internet usage in other languages (only 7.58%), which accounts for developing nations with sizeable populations, including India, Pakistan, Russia and Indonesia.

### Communicative directionality in virtual linguistic landscape (VLL)

Researchers of LL have analysed socio-political message flow in their studies of macro sociolinguistic connections, referring to the modes of societal influence on individual speakers; and, micro sociolinguistic connections, referring to the linguistic dynamics of individuals on society. Landry and Bourhis (1997, p. 25) ascribe to the LL the informational function 'as a distinctive marker of the geographical territory inhabited by a given language community', and symbolic as a contributor 'to the feeling that the in-group language has value and status relative

Table 4. Summary – a two-point historical data intersection of Internet users per language in millions.<sup>16</sup>

Language	January 2008	May 2008	Difference	Percentage Increase
English	377	427	50	13.26
Chinese	184	233	49	26.63
Spanish	106	122	16	23.26
Japanese	88	94	6	6.82
French	62	67	5	8.06
German	61	64	3	4.92
Portuguese	51	58	7	13.73
Korean	33	35	2	6.06
Italian	30	34	4	13.33
Arabic	28	60	28	144.29
Other world languages	198	213	15	7.58

to other languages within the sociolinguistic setting'. Individuals are micro linguistic disseminators of a message/information, while the government represents an overarching macro societal structure which instils beliefs and attitudes via linguistic means.

In a similar vein, Ben-Rafael et al. (2006) differentiate between 'top-down' and 'bottom-up', and Calvet (1993) – between *in vitro* versus *in vivo* flows of multilingual messages. The former distinctions, as a rule, refer to the signage produced from the top and *in vitro*, by the government, such as street signs, signs on buildings<sup>5</sup>, etc. while the latter – from the bottom and *in vivo*, by the citizens, such as shops signs, flyers, etc.

VLL also displays macro versus micro sociolinguistic connections analogous to physical LL. However, the interface with virtual multilingual messages is specific: the virtual interaction, by definition, is mediated and delocalised, and it takes place in a relatively transient domain.

To illustrate the notion of communicative directionality in VLL, we analyse the websites of German and Russian governments, as examples of the informational and symbolic functions of VLL.

### ***The informational function***

Multilingual signs participate in the speech act, which is always framed by the particular situational context (both intermediate and broader), and conditioned by the addresser, addressee, and the message intended. In public spaces, including virtual space, languages coexist and form multilingual discourses, with assumed multilingual speakers acting as a cohesive element between different linguistic codes. In most discourse, more than one function is served, with one or more functions being more salient and foregrounded. The main features of the informational function are to state a fact: Austin's constative function (Austin, Sbisà, & Urmson, 1976, p. 3), and to reference an event (or ascertain the existence of a phenomenon): Jakobson's referential function (Jakobson cited in Jaworski & Coupland, 1999, p. 51), which may be either true or false. The informational function can be measured by the success of information delivery, and the efficiency and relevance of content presentation, which Grice (1989, p. 26) categorises as *quantity, quality, relation* and *manner*.

To illustrate the informational function in virtual space, we analyse the German government's web presentation. There are two different versions of information on the German government's website in three languages: one in German (Figure 4.1), the other in English and French (Figure 4.2). The website is created on pragmatic rather than political principles: the German language site targets primarily German citizens and has a richer menu, leading to a variety of links and more detailed information. The main article (on the first page) is a story titled *Kanzlerin Direkt: Bessere Chancen auf Arbeitsplätze* ('Directly from the Chancellor (Kanzlerin): better opportunities at the workplace').

However, the content and the illustrations in the English and French versions are different from the German version: 'We can all profit from globalization', or in French, 'Tous peuvent profiter de la mondialisation', evidently targeting non-German speakers/citizens.



Figure 4.1. Chancellor of the Federal Republic of Germany.<sup>17</sup>

### *The symbolic function*

The symbolic function, on the other hand, fulfils other purposes beyond fact-statement, and, in principle, such messages or parts of messages are marked and salient. To illustrate the symbolic function in virtual space, we analyse the Russian government's web presentation. Figure 5 depicts a website that is entirely in Russian with the exception of the link to 'Government Meetings' in the lower right corner, with the last meeting dated 29 December 2006, almost two months after the rest of the content in Russian. In the title of the home page, in Russian only, there are five subtitles that lead to detailed information on the government in general, its activities, and departments of the executive government, councils, and the press centre.

One may conclude that advanced knowledge of Russian is necessary to be able to use the website. Even the link to the press centre is offered only in Russian. The potential and targeted users of the website are, most likely, Russian citizens, citizens of the former USSR, ethnic Russians in other post Soviet states, or other interested individuals, such as Russian-speaking foreign journalists.

Generally, non-Russian speakers have not been taken into consideration in the construction of this website. An implicit message has also been sent: Russian is a major language and should be learned widely; therefore, there is no need for an alternative language in the web presentation. Another message can be inferred: through its language policy, Russian is intent on resisting the hegemony of the English language.

While the explicit function of the website is to inform, the symbolic function is also implicitly served by the choice of languages and their strategic use to present



Figure 4.2. Chancellor of the Federal Republic of Germany.

content. The almost exclusive presence of Russian is marked against a background of absence of other world or regional languages.

These two websites exemplify two tendencies of content presentation on the Web, i.e. two functions of language: informational and symbolic. The former approach is more pragmatic and strives to 'listen' to the needs of the addressee. The latter, however, is less responsive to the context of the communicative act and implicitly, deliberately or unintentionally, sends a socio-political message involving the place of Russian on the world stage.

### Summary and conclusion

This paper extends the sociolinguistic concept of LL to describe multilingualism in the virtual world. The choice, prominence and juxtaposition of languages in cyberspace create an important dimension of global linguistic ecology, and the channels, choices and limits in languages in cyberspace affect fragile balances in individual and social linguistic repertoires.

Multilingual clues within the physical, as well as virtual LL, influence our social perceptions and indicate the role and nature of power relations as linguistically represented by cultures. This paper has shown how such indicators are also present in virtual space.

The intention of this article is to conceptualise the VLL, which has been introduced metaphorically, historically, contextually and analytically. Examples of language contact, resulting in hybridised orthographic and communicative use, and indications of linguistic balance as seen in statistics on global online language use, have provided commentary on linguistic cyberecology and cybercolonialism, and an

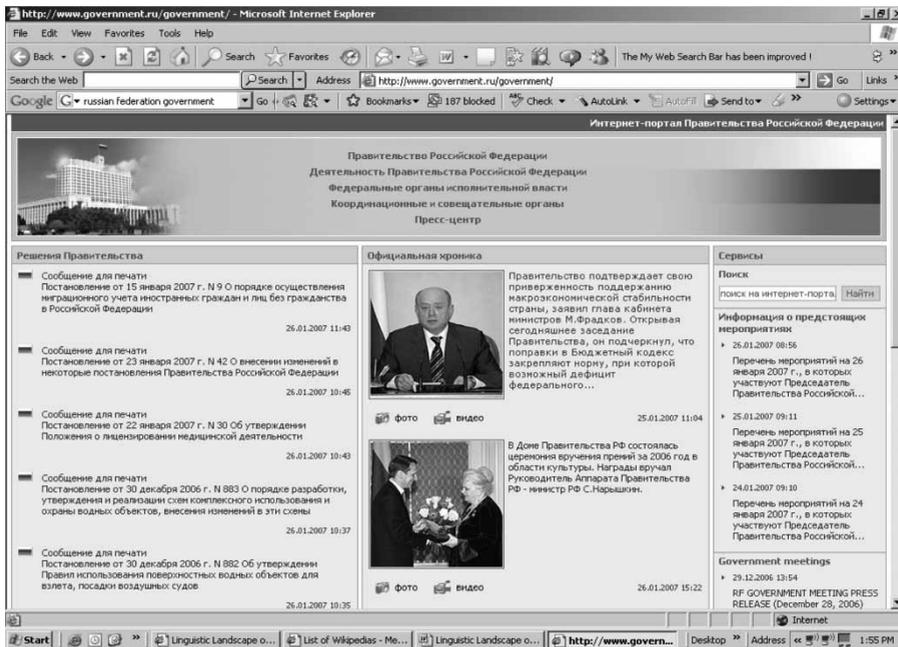


Figure 5. Government of the Russian Federation website.<sup>18</sup>

analysis of communicative directionality in VLL focussed on two government websites to illustrate informational and symbolic functions.

The VLL as illustrated in an analysis of sample websites (Web 1.0) and social computing applications (Web 2.0), has been shown to have hybrid characteristics; it is not a simple extension of physical LL to cyberworlds, despite the observation that novice web users tend to view cyberspace as a conceptual rendering of tangible world ontology (Maglio & Mattlock, 1998). Since interaction with virtual space is digitally mediated and delocalised, it exhibits a number of unique features.

The phenomenon of LL is, of course, not limited to objects from the physical world. Many real world billboards are programmed screens, changing messages at timed intervals, or displaying up-to-the minute advice on highway driving conditions. So, just as Web 2.0 advancements towards real-virtual interactions are incrementally converging the worlds of atoms and those of bits, so is the physical LL absorbing digital signs. According to Maglio and Mattlock (1998), as web users become increasingly active in virtual environments, the gap in individuals' perceptions of the world of atoms and the world of bits narrows.

As digital technology advances, the LL of virtual space evolves, adopting new modalities of expression and content presentation. What started as a static, non-interactive display of data more than a decade ago (Web 1.0) has evolved into multimodal networks of social data exchange (Web 2.0), with a prospect of further developments into a fully immersive landscape. The name for such an ambiance has already been coined – *ubiquitous* (or *pervasive*) *computing*. In such an environment, the modes of language use and opportunities for hybridised and overlapping multilingual communication will increase, according to the statistical trends shown, implicating sociolinguistic and socio-political relations on a global scale.

These days, individuals are physically attached to hardware enabling digitally mediated communication, such as mobile cell phones, and portable digital audio (MP3) players, palm computers, pagers and handheld digital games. The future offers increasingly complex and ubiquitous machine–human interfaces that will fundamentally change the relationship between the real and the virtual, profoundly affecting how we think and how we communicate. This communication revolution will impact global language diversity. Already in the near future, we may witness divergent trends of multilingual usage in cyberspace with novel possibilities for languages, big and small alike. This article draws a picture of how that impact might be tracked, suggesting further quantitative (corpus linguistics) and qualitative research of the LL aspects of cyberspace, including an analysis of the pragmatics of multilingual communication in cyberspace, as well as research on the semiotic and cognitive aspects of LL in cyberspace.

## Notes

1. Although, nowadays the terms *Internet* and *Web* are often used interchangeably, they are not synonymous in the strictest sense of the words. Alongside e-mail, Usenet news groups and FTP, the Web is just another way, albeit most prevalent, of accessing information over the Internet. In this article we use the term Internet in phrases such as Internet usage/user or Internet worlds, to denote virtual activities not restricted to the WWW, such as SL. Otherwise, the term World Wide Web, or its shorter forms *the Web*, or *WWW* is used as the primary information-seeking and manipulation platform which hosts a number of social networking applications discussed, commonly referred to as Web 1.0 and Web 2.0.
2. [http://latinum.mypodcast.com/2007/06/AAAdler\\_XXVIII\\_Pensum\\_Duodetricesimum\\_Part\\_B\\_Section\\_iii-57255.html](http://latinum.mypodcast.com/2007/06/AAAdler_XXVIII_Pensum_Duodetricesimum_Part_B_Section_iii-57255.html).
3. The WWW Consortium (W3C), founded at the Massachusetts Institute of Technology Laboratory for Computer Science in 1994, continues to develop Web standards carrying out a mission ‘to interact with text and images from an ever-growing pool of information “to ensure long-term growth of the Web”’; URL: <http://www.w3org/Consortium>
4. A similar advertisement can also be found at airports; <http://www.vueling.com>
5. <http://www.milliondollarhomepage.at>
6. <http://www.pixels.od.ua>
7. <http://www.milliondollarhomepage.com>
8. <http://www.sl.nsw.gov.au/multicultural/pdf/billboard.pdf>
9. [http://secondlife.com/whatis/economy\\_stats.php](http://secondlife.com/whatis/economy_stats.php)
10. Which or who? The literature is mixed on whether ‘avatar’ takes an animate or inanimate relative pronoun.
11. According to Newsweek’s statistics from 27 November 2006, out of 1,230,054 players, 62.6% are from the English-speaking countries. Although, players from other countries may in the future increase their share in the SL’s pie chart, it is reasonable to claim that majority, or at least 60% of communication in SL, will be conducted in English as a first or second language for another few years. [http://www.businessweek.com/magazine/content/06\\_48/b4011414.htm](http://www.businessweek.com/magazine/content/06_48/b4011414.htm)
12. [http://meta.wikimedia.org/wiki/List\\_of\\_Wikipedias](http://meta.wikimedia.org/wiki/List_of_Wikipedias)
13. [http://meta.wikimedia.org/wiki/List\\_of\\_Wikipedias\\_by\\_speakers\\_per\\_article](http://meta.wikimedia.org/wiki/List_of_Wikipedias_by_speakers_per_article)
14. The number per article represents the value of articles in relation to the number of language speakers. The following formula is used: Number of language speakers/number of Wiki articles.
15. Retrieved on August 4, 2008
16. <http://www.internetworldstats.com/stats7.htm>
17. <http://www.bundesregierung.de/Webs/Breg/DE/Homepage/home.html> [Retrieved on January 28, 2007].
18. <http://www.government.ru/government> [Retrieved on January 11, 2007].

19. The percentage of the positive/negative growth is calculated using the following formula: [(later date value–earlier date value)/earlier date value]\*100 E.g. for English: [(427–377)/377]\*100 = 13.26.

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