

From Emoticon to Universal Symbolic Signs: Can Written Language Survive in Cyberspace? (Paper)

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Abstract: This paper first describes the current state of emoticon usage, referring to the recent popularity of graphic emoticons which are especially favored by young Japanese people. Extreme examples of hieroglyphic use of graphic emoticons will be also illustrated. We will also discuss the possibility of universal symbolic signs overcoming the barrier of language difference as offspring of these graphic emoticons.

1 Introduction

Our communication style has greatly changed through the Internet over the last three or four years because of the emergence of new tools for communication such as blogging, social bookmarking, social networking service, mashup service and so on. In the not so distant past, our Web page stood alone as a single static page without a device to encourage interactive communication with the visitors, only to be accessed by anonymous people in principle. Today, various types of dynamic social networks in terms of business activities, hobbies or special interest have become possible on the Web because of the above-mentioned technological developments. Without introducing an expensive groupware system, we can now form a group on the Internet and within this cyberspace we can communicate with each other and sometimes actually manage a project in an organized manner, even free of charge.

There has also been a dramatic change in the way we search for information on the Internet. We are establishing various different channels and networks to describe metadata of an object on the Internet. We are moving in the direction of separating the

object itself and its metadata. This trend has greatly increased the range of the searchable objects on the Internet. Today we can search for desired pictures, video clips or music pieces quite easily. We also begin to feel that so-called "collective knowledge" implemented through social bookmarking is not only possible but also more informative than we first expected.

In a sense, as the automobile became the extension of our legs and feet, and as the computer or a mobile phone became the extension of our brain, the computer network or cyberspace is now becoming the extension of our real world. Or for some people cyberspace may even mean more and it may be more important than the real world. Efficient businesspeople are relying more and more on the network, and those who organize the business calendar online using calendar service of famous portal sites, such as Yahoo! Calendar or Google Calendar are not rare these days. As businesspeople get busy, they also tend to rely on the reminder service of these portal sites, much as if their schedule were carefully organized by a capable secretary.

1.1 Core Components of Cyberspace

As we can see, we are relying increasingly on functions in the cyberspace. It is not too much to say that at no other time in history have we witnessed such a strong reliance on technology and such a keen attachment to cyberspace.

But what is cyberspace made of? It is of course filled with various types of files and huge amounts of information. However, in principle, it is written language that makes up cyberspace and it is impossible to bring cyberspace into existence without language. We communicate with language when we use our email or blog, we search for necessary information and desired files by means of language and we "social-bookmarking" using language.

1.2 Nature of Cyberspace Communication

Communication in cyberspace by means of written language has some unique features. Once transmitted, it is impossible or nearly impossible to recall the message. Non-verbal features such as gesture, posture or facial expressions are rarely visible in cyberspace communication. Unless we use messaging service or other types of audio-visual modes of communication on the Internet, we cannot convey prosodic features such as intonation, rhythm or stress in cyberspace. This situation naturally leads to the difficulty of comfortable and smooth communication in cyberspace, since it is known that the contribution of the purely linguistic elements to our actual face-to-face communication is only about 7%, while non-verbal information accounts about 55% and prosodic features

comprise 38% of the whole contents of our real face-to-face communication (Mehrabian, 1971).

In fact it is rather difficult to have a language-only communication online especially if both parties have just encountered each other for the first time and share little information about one another. In real life, the first encounter will of course put some pressure on both parties but probably with the help of paralinguistic and prosodic information accompanying the language, they will understand one another quickly and the communication between them will become rather smooth in a short time.

In cyberspace we often encounter a very violent argument or in a sense a furious verbal fight. Such a fight might not arise if both parties encountered each other in real life and began the discussion face-to-face. In such a severe verbal fight in a BBS (Bulletin Board System) or in a social network service, we very often see the posting like "I did not mean that in my previous posting." Then the clarification or meta-clarification of the past postings adds more oil to the flames and the situation will often become uncontrollable.

2 Emoticon as Paralinguistic and Prosodic Features in Cyberspace

Emoticons or smilies have gradually entered cyberspace to provide the language-only and seemingly logic-only cyberspace communication with an emotional and human touch. In a sense emotions are considered to be functioning as prosodic or paralinguistic features. Like a sentence "This paper looks quite strange ;-)" they are often added at the end of a sentence or a phrase to show the emotional state of the writer. Thus, an emoticon is a typographic version of paralinguistic features. In East Asia, especially in Japan, people developed their own style of emoticons, or in the Japanese language, "kaomoji" (face mark or face character). Normally these East Asian emoticons are to be read vertically like a sentence "Well, this paper is not so bad as you might think (^_^)." Although their style is different from the Western style, these are also quite intelligible to people all over the world. Figure 1 below shows some examples of the East Asian emoticons.

(^_^) or (^.^) or (^.) or (^.)	smiley
(@_@)	zombie smiley / smiley with eye hanging out (originally typoed)
(^..^)	vampire smiley
(_-) or (^_-)	wink (or alternatively quirked eyebrow in latter case)
(>_<) or (>_>)	in pain, or frustration
(<_>)	sad
(_/_)	evil
(-_-)	semi-angry or upset or sighing
(H_H)	pervert (from Japanese "hentai")
(//_//)	emo
(^o^)	singing, or laughing maniacally
(~_O) or (~_O)	one-eyed pirate or monocle user in latter case.
(^o^)	very excited (raising hands)
(-_-) or (-_-) or (= =)	annoyance, resignation, or sleeping (eyes shut), grumpy
(-.-)	sleepy
{-_-} or (^_^) or (^_^); or ^_^	nervousness, or sweatdrop (embarrassed; semicolon can be repeated)

Figure 1: Examples of East Asian Emoticons. From <http://en.wikipedia.org/wiki/Emoticon>

East Asian languages often have double byte character code system and this allows more variety of emoticons in East Asian languages. The next example of Figure 2 shows some Japanese double byte code emoticons showing the emotion of "fear." Please note emoticons showing an acute emotional state are normally accompanied with actual linguistic expressions or interjections. Japanese characters shown in Figure 2 are all these interjections representing the feelings of "fear." Various Japanese writings in kana (phonographic writing) all represent some kind of the feelings of fear.

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(((p (>o<) q))) ギャアアア!!!
/(. ; \ コワイヨー
~m( --)m(/; ° ロ°) / アレー
ギャアアアア (>< ;)//
(*ノ・)ノギャー~~~~!!
バタバタ ヽヽ(≧▽≦) // キャー
("ロ")ヤメデー
\ (×)シギよえええっ
..ド(。><)シギよえええ
\(>◇<)/ギャー!
\(>o<)/ギャーツ!
(((p (>v<) q)))!!
(((p(>o<)q))) いやあああ
ウギャー~~~~(((/*0* ;)/
\ (O_ o) /コワイヨー

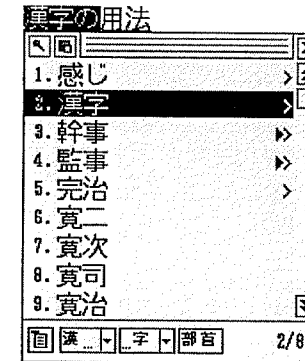
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Figure 2: Examples of Japanese Double Byte Code Emoticons. Showing the Emotion of Fear. Taken from <http://www.kaomoji.com/kao/text/kowagaru.htm> (Emoticon Information Site in Japan)

2.1 Input Method for Japanese Emoticon

Westerners may wonder how people in Japan input a huge variety of Japanese double byte code emoticons. The answer lies in the Japanese input method. When we install the operating system for a computer, a certain type of Japanese input system will also be installed. The standard input method for Microsoft Windows series is MS-IME (Input Method Editor) but in Japan other input method systems such as ATOK or VJE are also popular. When you want to write a word with some Chinese characters, you must first input the Romanized reading of the word and then the desired word with Chinese characters will appear. However, the Japanese language has a lot of homonyms, so if you do not like the first option, then you can hit the space bar to open a small pop-up window showing the alternative Chinese characters (see Figure 3) and then choose the characters you want. Of course some intelligent dictionaries are working behind this system.

In fact some Japanese emoticons are included in this Japanese input method. Additional free emoticon dictionaries can be also added. Figure 4 shows the list of alternative emoticons presented in the pop-up window when the author looked for an appropriate emoticon to match the Romanized input of "panchi." This word is the equivalent to the English word "punch" and the emoticons presented here all show the movement of firing a punch. The possible situation when this emoticon would be used would be to indicate something like "Damn you!" o(*_*)_o



The characters “漢字” was needed.

Figure 3: Choosing Chinese Character Option (ATOK System) For the Reading “Kanji” (Meaning: “Chinese Character” in Japanese)

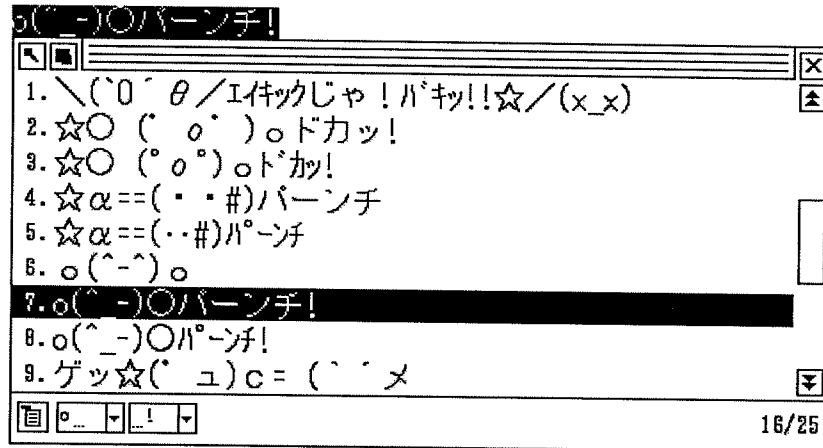


Figure 4: Choosing a Desired Emoticon using Japanese Input Method

3 Graphic Emoticon as a Linguistic Unit

As we notice this when we access the Web-based free Email service of famous portal sites, graphic emoticons are also becoming quite popular in today's cyberspace. Even when we input the typographic emoticons, some software such as Microsoft Word or email client software programs display the result in graphic emoticons. In Japan, mobile phones also need special kind of Japanese input system similar to the computer-based system and they normally support the input of graphic emoticons. All the major Japanese providers are moving toward the standardization of the codes for graphic emoticons and the use of graphic emoticons is now prevailing in mobile phone communication among young Japanese people.

Computer-based communication of course is not an exception. Many Japanese blog services now support the HTML-based posting with graphic emoticons (see Figure 5) and though the input system is still primitive and the repertoire of graphic emoticons is still limited, use of graphic emoticons is expanding.

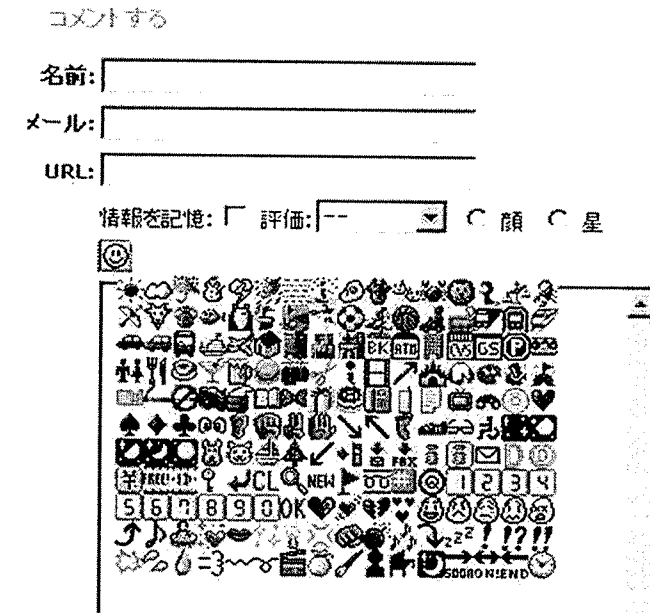


Figure 5: Input Menu for Graphic Emoticons (All with Color in Actual Page). From Livedoor Blog in Japan (<http://blog.livedoor.jp/>)

3.1 New Wave of Graphic Emoticon Usage of Japanese Young People

Today, young people, especially girls, in Japan have a tendency to use a graphic emoticon together with a relevant word in a sentence. There often exists duplication of vocabulary, i.e., a word and a graphic emoticon that represents the meaning of the word are placed side by side. Here are some examples taken from the actual blog postings of university students:

(▽^人)!! 晩ご飯!! (▽^人)φ(c・ω・)ψモグモグ

Meaning in English:

!!(▽^人)φ(c・ω・)ψ "dinner..."

(▽^人)!! "...eating..."

お手紙を発見📧📧📧❤️うれしい❤️

Meaning in English:

📧📧📧❤️ "Found a letter and..."

😊 ...felt very glad."

午前5時に起床z²地下鉄の始発に乗り三ノ宮へ🚇

Meaning in English:

z² "Got up at 5 and went to Sannomiya..."

🚇 ...by subway."

As we can see from these examples, young people in Japan use emoticons not only at the end of a sentence but they tend to use them within a sentence to emphasize or just to decorate a word.

3.2 Replacement of Word by Graphic Emoticon

The most recent trend of using graphic emoticons is really extreme and some young people in Japan omit a word in a sentence but use only a graphic emoticon illustrating the meaning of the word. Some examples are shown below:

...その後突然☎がぶっ壊れました(;_;))

Meaning in English:

"...afterwards, suddenly..."

☎ (mobile phone) (;_;) ...broke down."

バイトと🚗教習で大変でした=3

Meaning in English:

"Was busy because of the part-time job and the..."

🚗 (automobile) =3 ...training."

わたし決してこの🎄をバックにしては📷撮らん🙅🏻👀

Meaning in English:

"I will never take a... (photo) 📷

with this... (Christmas tree) 🎄

behind me! 🙅🏻👀"

These examples are really extreme and of course there are not so many people in Japan who adopt this style of writing for blog postings or email communication. In addition, many conservative adults, especially educators consider this type of writing to be quite childish and absurd. However, in some sense this tendency of using graphic emoticons as replacement of words will lead to the completely innovative future style of communication, namely communication by means of universal symbolic signs.

4 Idea of Universal Symbolic Signs as Future Language

If the trend of the replacement of linguistic units by graphic emoticons seen in the communication behavior of young Japanese people goes further, we will be able to devise universal symbolic signs that will work as a special kind of auxiliary language used for communication using computers, mobile phones and other computer-based instruments. As such symbolic language will make use of simple easy-to-understand pictures, it will really make international communication easy, overcoming the barrier of language difference.

It is true that we already have a long history of using pictures for communication since the time of Egyptian hieroglyphs or Chinese inscriptions on bones and tortoise carapaces. The latter developed into Chinese characters but in the Western world, hieroglyphic culture disappeared during the long course of history. Sometimes artificial pictorial languages were devised for universal communication, but they were not put to practical use in our real life widely as an auxiliary language. For one thing, they often needed some amount of learning to use the pictorial language. To take the modern example, Bliss (see BCI, 2004) or LoCos (see Ota, 1987) are both really well designed and well organized visual languages, but they require some amount of learning before one can use and understand the system. Because of this, they still remain to be at the experimental level, being used only in a limited area of our life.

Another serious problem of the modern pictorial languages is that they were invented before the emergence of the personal computer and the Internet. Since they depended on the paper media or other type of fixed analog media, they unfortunately lacked the flexibility of communication and ease of authoring. Of course Bliss, LoCos or other types of modern visual languages may have a brighter future in the new era of ICT but if we see the rapid development of real life communication employing graphic emoticons, it seems more probable that the descendants of these graphic emoticons will evolve into the future symbolic language for global communication.

5 Nature of Pictures: Are they Really Still and Two-dimensional?

Keeping in our mind that pictorial language will have a strong advantage in this ICT age, let us reconsider the nature of pictures. We tend to think that still pictures, pictograms or other visual signs are really still and motionless, but from the psychological point of view, this is really doubtful. The important fact is that it is our brain that sees the world, not our eyes! We tend to believe what we see is the reality and our seeing is constrained by how

our eyes see the world. But the past psychological studies on visual perception tell us that it is our brain that sees the world and not our eyes. There is a lot of evidence from the researches on visual illusions.

For example, let us see the famous figure-ground illusion (Figure 6). Although it is just a single picture, the figure and the ground become reversible depending on our capricious preference of seeing the picture.

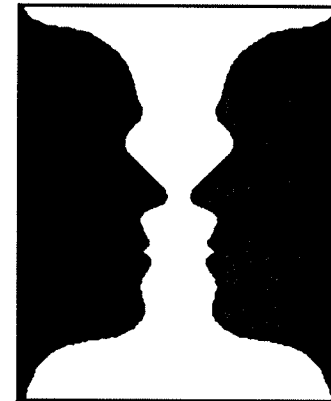


Figure 6: Example of figure-ground illusion. From <http://en.wikipedia.org/wiki/Illusion>

The case of the Kanizsa Triangle is more special (see Figure 7). We can see a floating white triangle, which does not actually exist. Our brain also tells us that there is another lined triangle below the "white triangle." Actually, no physical triangles are drawn in this picture, but our brain insists that there are two different triangles there, with the one with black outline below the completely white one.

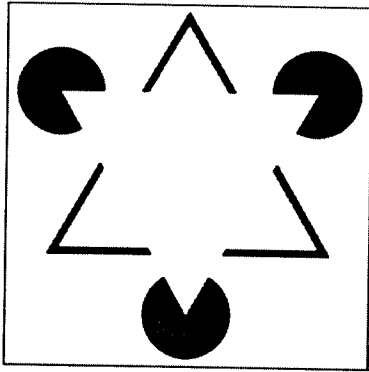


Figure 7: Example of Kanizsa Triangle. From <http://en.wikipedia.org/wiki/Illusion>

Pictures or illustrations are of course two dimensional, but normally we get three-dimensional information from them. Figure 8 shows another famous illusion called the Ponzo Illusion that illustrates how our perception is easily fooled by the seemingly three-dimensional situation. Our brain interprets that the image higher in the picture field is farther away, so it interprets that the light grey bar there is larger than the one that exists in the lower position. Of course, the physical size of these two bars is the same.

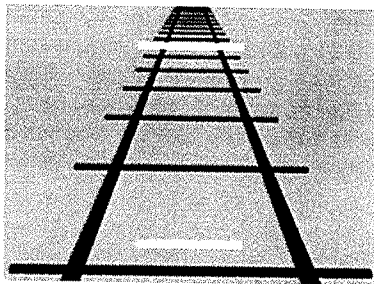


Figure 8: Example of Ponzo Illusion. From <http://en.wikipedia.org/wiki/Illusion>

5.1 We Can Show Various Degrees of Motion or Feelings by Modifying the Same Picture

We can add some accompanying decorative drawings to the same picture and modify the degree of motion or the feelings of a person. This is one of the techniques used in drawing cartoons but can be effectively used for future symbolic signs. Figure 9 is an excerpt from a famous Japanese cartoon series called Sazaesan by Machiko Hasegawa (Hasegawa, 2003) with the leftmost picture being the original used for the actual episode. This shows the scene where the main character, Sazaesan, is running with a bucket full of horse manure.



Figure 9: Sazaesan running with a bucket full of horse manure. (Leftmost picture is the original)

As the middle picture shows, if the sweat-like droppings and the lines behind her which are seemingly showing the speed of the movement are deleted, then it looks as though Sazaesan is carrying the bucket rather effortlessly. On the other hand, the rightmost picture with more sweat-like droppings, more lines and some balloon-like figures tells you Sazaesan is carrying the bucket with all of her might.

5.2 Pictures Tell us about the Past and the Future Too

Pictures of course tell us about something that is happening at a certain point of time. But they also tell us what has happened just before and what is going to happen after the scene is over. Look at Figure 10, a scene taken from a famous Japanese cartoon called Kyojin no Hoshi (Star of the Giants) by Ikki Kajiwara and Noboru Kawasaki (Kajiwara and Kawasaki, 1995). The pitcher, Hyuma Hoshi is about to pitch a ball. What kind of a ball do you expect? A slow ball? No. Probably, we expect he is going to throw a speedball, a very fast one. We will predict so because of his wind-up posture. We can also see a small amount of the sand cloud rising from the ground reaching the pitcher's right heel.

This, as well as the height of his right leg, also enables us to guess the speed and the strength of the pitcher's right leg movement at the beginning of his wind-up motion. A single picture tells you more than many words and in a sense we can learn a lot from the cartoon drawing technique.



Figure 10: Scene from Japanese Cartoon "Star of the Giants"

6 Conclusion

So far it has been argued that the development of emoticons, especially graphic emoticons popular among Japanese young people using mobile phones and computers will lead to the next-generation universal symbolic language. Of course the conventional

language will be employed in our future communication using computers or other computer-based instruments but we will see more situations where the universal symbolic signs are used. For example, such universal symbolic signs will exert its power in the multi-lingual situation.

Suppose that we have a set of core symbolic signs corresponding to the core vocabulary of a language. If several different languages have a similar set of core vocabulary, then we can create a link between a sign and the corresponding word or the phrase of each language. If this is implemented electronically, it will be quite easy for us to create an electronic multi-lingual dictionary (see Figure 11).

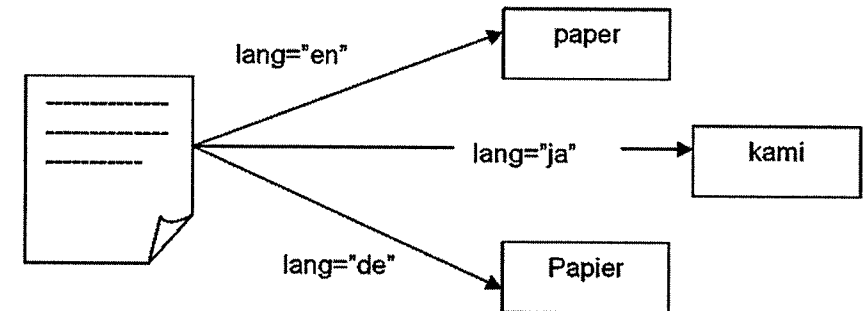


Figure 11: Sign of "Paper" and Multi-lingual Lexical Explanation as Metadata

This just looks like a multi-lingual version of the famous "Duden Bildwoerterbuch" but the difference is that the sign and the lexical explanation in language do not exist in the same object. The lexical explanation in each language exists as metadata outside the picture as shown in figure 11 and this means the same picture object can be used as many times as required. If a phrase "cut the paper with a knife" is included in the electronic multi-lingual dictionary, we can again use the same sign for the "paper" to illustrate the meaning of the phrase. Even composing a simple sentence combining symbolic signs will be possible. If this is implemented, a meeting with people from different countries speaking different languages will be much easier. Any participant can consult the electronic dictionary to identify the sign or the sequence of the signs and show it to other participants. All participants will understand the meaning instantly and if

necessary, another person can consult the same dictionary switching to his language to respond the opinion.

In the near future, public signs, instructions for vending machines, automated teller machines or other interactive machines will all use the universal symbolic signs. Physically handicapped people will also enjoy the benefit of this new visual language. Even the people who speak different languages will be able to communicate through the email just by using the symbolic signs and a meeting in the multi-lingual situation will be much easier because of the new type of symbolic language. Dynamic and animated symbolic signs will be also integrated into this next-generation visual system. In fact, as Maurer et. al. (2003) argues, within just 10 years, we will be carrying a tiny but powerful computer capable of presenting high resolution movie images that is compatible with the new type of symbolic signs. If this new system of universal symbolic signs is really implemented, and if the set of the symbolic signs is really universal, i.e., without language- or country-specific variations, cyberspace will be a much more comfortable place to live in.

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