Mangas unbound: understanding the cross-cultural diffusion of complex signs

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1. Introduction: Manga without borders

As a mass cultural product, manga art, in all the forms supported by contemporary technology, plays an important part in the social life of many Japanese across a wide spectrum of generations and special interests. It can even be contended that manga embodies a defining cultural characteristic of the perception of Japanese culture on a par with Nô theatre and Kabuki albeit probably more socially inclusive because of the diversity of the themes and genres which are encompassed by this visual language. For Japanese readers, mangas are understood in the context of their everyday life. However, by contrast with the productions of the traditional high culture which require explanatory commentaries if they are to be enjoyed by foreign audiences, mangas for the most part do not need such translation and cultural contextualization or at least they do so to a lesser extent. Their capacity to produce meaning in and by themselves is not fundamentally bound by the cultural codes of their origins, not even in a large measure by the linguistic messages which occasionally appear in their balloons or captions. The students of mangas are thus confronted with a puzzling phenomenon: the ease and rapidity with which the products of a typically national art have spread beyond the boundaries of their initial cultural sphere by piggybacking on the channels of globalization if not contributing themselves to the development of these channels through priming a global demand for the works of this local artistic industry.

The socio-cultural history of technologies and symbolic forms shows that some complex behaviours and artefacts tend to spread across linguistic and ethnic borders with a remarkable ability for adaptation to different geographical environments and cultural contexts. Cases such as the prehistoric beaker pottery (e.g., Renfrew 1987) or the more recent wheel (Tarr 1969; Bulliet 1990) and its modern avatar the bicycle (Whitt and Wilson 1982) can be explained, for a large part, by their superior functionality. Architectural designs or decorative motifs are less accountable in purely practical terms and pertain to the dynamic of styles and fashions. But the uncontrollable dissemination of tales and their visual embodiments which quickly become global currency is more difficult to explain in the rational terms of economics and marketing strategies. Predicting the success of a narrative in whatever form (rumour, novel, film, etc.) is a most risky proposition whose outcome is full of surprises. Indeed, the history of the film and novel industries is a chronicle of unexpected failures as well as surprising successes. Furthermore, it usually requires a costly process of linguistic translation. The worldwide diffusion of mangas and their derivatives in the form of *anime* and video games presents to the observer a case of complex semiotic artefacts which emancipated themselves from their initial cultural bonds (Ito 2005) and were exponentially replicated as a global media phenomenon (e.g., Schwartz & Rubinstein-Avila 2006; Pelliterri 2010) and as a teachable code able to generate numerous local productions (Nagatomo 2003; Tsukamoto 2006). While tracing the history of the diffusion of mangas and describing their idiosyncratic features constitute a daunting but manageable enterprise (Johnson-Woods 2010), understanding how and why this happened is a major challenge. The purpose of this paper is to explore the ways in which this problem could be effectively formulated in a

comprehensive manner with the help of various semiotic and memetic models of cultural evolution, the latter being based on the notion of cultural units conceptualized as "memes" (Dawkins 1976). Epistemological advances in this domain would have important practical implications for the comprehension of similar phenomena, and the eventual lucid and ethical construction of a truly global culture.

2. The challenge of explaining the cross-cultural diffusion of the visual language of Manga

It should be obvious that the global diffusion of mangas and *animes* is a cultural phenomenon which cannot be explained by a single model or theory. It requires an epistemological synergy of the type which has emerged in the past century under the name of semiotics and which continues to develop through the confrontation of its numerous theoretical streams with actual socio-cultural situations and symbolic dynamic processes. This approach cannot be substituted for the specialized methods of psychology, sociology, economics, art history, literary and cultural studies, and media theory which focus on aspects of the mangas which are relevant to their disciplinary concerns. For instance, the perspective of literacy scholars (e.g., Kress 2000) or political scientists (e.g., Kinsella 2000) are valuable discussions of the role of mangas in developmental psychology and critical ideology, respectively. Similarly, sociologically inspired research raises essential issues and provides an abundance of data concerning the demographic and geographic mapping of the quasi global consumption of mangas in particular local contexts (e.g., Bouissou 2006, 2010; Pelliterri 2010). However, these statistics and socio-psychological insights are not sufficient to account for the universal appeal of manga art as produced by their Japanese procreators and replicated in various cultural contexts.

How can we try to explain the addictive power of mangas which is the basis of their trans-cultural diffusion in such a diversity of cultural and linguistic areas? Three aspects of the problem will be considered successively from the abstract point of view developed by various branches of semiotics: (i) their agents (characters, actors, *actants*) can be defined first by their visual qualities and their narrative functions in terms of universal human biosemiotics; (ii) their dynamic narrative structures can be conceptualized as algorithms subject to the laws of cultural evolution in terms of semiotics and memetics, and characterized by the redundant actualizations of their functions; (iii) finally, the way in which the models of game theory are implemented in manga narratives can best explain why such complex symbolic forms transcend their cultural borders and become universally addictive through their capacity to trigger the production of specific neuro-transmitters which stimulate the reward areas of the brain, thus bringing neuro-semiotics in focus as an explanatory principle for the pleasure their consumption creates.

(i) The representation of biological signals

Mangas are generally considered to have their origins in the ancient scrolls of images and painted banners designed to illustrate story-telling going back to at least a thousand years in the history of Japanese culture as it was shown by an exhibition organized by the Suntory Museum of Art in 2007 on ancients *Emaki* (scrolls) which were declared a National Treasure (*Chôjû-Jinbutsu-Giga Emaki* 2007). The

communication constraints of this original medium required a particular semiotic economy: relative schematisation and redundancy of relevant features in order to make up for the distance between the storyteller and the audience. These characteristics seem to have been carried over to modern print and animation media. There is indeed in both perceptual approaches – the Emaki and the Manga modes -- a speed factor which does not allow for a detailed analysis or a contemplative lingering on the images which must deliver their information in a robust and unambiguous manner. The observation of readers of Manga magazines shows that they turn the pages at a fast pace. Mangas exhibit a rich repertory of stereotyped facial and body patterns which are often displayed in sudden close-ups by occupying most of the frames. In all cases the frames are semiotically saturated with consistent signs. It is trivial, but relevant to the cross-cultural appeal of these images to note that basic human emotions such as anger, fear, disgust, sneer, triumph, affiliation, etc., are indicated by simple mouth outlines and eyebrow patterns. The graphic treatment of the eyes which provides immediate information on the direction of the gaze and the degree of arousal of the subjects forcefully focuses the readers' attentions on primal instincts. Enlarged pupils are a universal biological sign of sexual attraction and psychological interest.

Other universal features which are implemented in mangas include the strong binary oppositions between neotenic rounded faces *versus* square and angular facial features, or curved body morphologies *versus* massive and stolid figures. These signals are among the most obvious and most effective ways of triggering responses deeply rooted in the evolutionary past of humans and bypassing the secondary elaborations of cultural codes. From the point of view of biosemiotics, that is, the study of the body signals through which humans interact with each other at the most basic, hard-wired level, mangas offer optimal information density and consistency. Similar remarks can be made regarding the clothing (present or absent), the treatment of fonts or specific signs to convey acoustic and tactile information with limited linguistic components. Even for readers who cannot read Japanese the choice of fonts or styles of calligraphy suffice to indicate unambiguously loudness or softness, anger or love, warmth or coldness, aggression or affiliation.

Independently of the stories told visually from page to page, the biosemiotic value of the images and the situations they evoke are such that some readers consume them purely for their erotic gratifications. Some mangas are designed to specifically target various sexual orientations and fetishist audiences but it appears that all mangas involve as a constitutive component of the genre some degree of erotic implications on the visual if not narrative level. They achieve a kind of optimal erotic semiotics (Bouissac 1992, 2009). The unconstrained sensual qualities of many manga characters dramatically contrast with the sexual neutralization which characterizes European and American comics that are heavily censored or self-censored as, among others, Bouissou (2010) pointed out. This alone could provide a plausible ground for their cross-cultural popularity but is only one aspect of this much more complex socio-cultural phenomenon. Mangas are indeed primarily stories more complex than the mere playing out of sexual stimulations. It should be noted, though, that any dyad which explicitly or implicitly conveys evidence visual of physical or romantic

attraction is in itself the kernel of a narrative as it foregrounds a desire which tends to its satisfaction.

(ii) The power of narratives

A century of reflections on what constitutes a story, which culminated with A.J. Greimas's elaboration of the fundamental narrative structure, has shown that all tales, whatever the modalities or multimodalities through which they are implemented, are generated by a relatively simple algorithm (Greimas 1983; Budniakiewiz 1992; Boyd 2009). The complexity of epics and novels can be analyzed very effectively as expansions, recursions, or multiple embeddings of a basic formula which transforms through semio-logical stages a negative value (a lack or a loss) that is experienced by an agent (or a group) into the recovery or the acquisition of the missing valuable object. The latter may be material (e.g., property), social (e.g., status), moral (e.g., dignity), or affective (e.g., friend, lover, or spouse). The process involves other agents who, relatively to the main agent, contribute to his/her actions as helpers or opponents. The whole structure is embedded into a communicative arc. There is, in principle, no limit to the ways in which several such narrative structures can combine for instance in the form of competitions (two agents have the same goal or opposite goals) or in the form of parallel stories which mirror each other or branch out from a main stream.

The fundamental algorithm, that is, the set of instructions that one follows when telling a story until the story comes to closure, appears to be a human universal whether it is implemented in a natural language or by visual means which constitute a form of language (Cohn 2010). Even when the basic structure of narratives is partially transgressed for creating special aesthetic effects, a complete story has a beginning and an end determined by the form of this simple algorithm which satisfies the primal cognitive expectations of the narrator and the audience in any modality that can be imagined even if it provides an unexpected outcome. The more redundantly a narrative implements this algorithm, the more effectively it commands attention and the less effort it requires for being cognitively, emotionally, and semiotically effective. By comparison with literary works (even in the form of graphic novels) which cultivate ambiguities, reflexivity, and even sometimes unsolvable dilemmas, mangas seem to be, for the most part, direct, often brutal realizations of the primal narrative structure which organizes our cognition from a very early age. Let us note, though, that this descriptive feature of mangas, which points out one of their salient characteristics, does not suffice to explain why they have spread like a semiotic fire in a global context. The key is to understand the source of the kind of addiction they create among the populations which are exposed to them through the channels of international commerce and electronic media both at home and abroad.

(iii) The pleasure of narratives

There does not seem to be (nor to have ever been) any culture in the world which does not foster a fascination with narratives. We could even say that humankind is addicted to stories. Humans are never tired of listening to, or telling stories whether they consider them true or fanciful. They even listen again and again with equal pleasure to the same tales. The narratives themselves are based on a very limited number of types of plot. As we saw in the preceding section, it can be demonstrated

that all narratives reproduce endless variations of the same fundamental structure. Understanding why it is so will be the key to uncovering why some narratives are so effective that they reach the status of global currency. The migration of folktales in various forms can be traced back over huge and diverse cultural areas. The algorithm of narrative structures specifies well-defined relations among functions and formalizes their transformations but this is only one part of the picture. As a network, the nodes of a narrative are decisions made by the actors. Without such choices among alternatives and their consequences nothing could ever happen. These processes have been construed as games aiming at a pay-off by the theoreticians of game theory and rational choice theory whose initial concern was to understand economic decisions made at the consumer level. However, game theory has proved to be a very productive model that is applicable well beyond economics to the disciplines of the social sciences and to the process of evolution by natural selection itself (e.g., Gintis 2009) as it fundamentally involves selfishness and cooperation as the crucial alternative of choices aimed at a pay-off. It has often been pointed out that brutal self-interest confronting altruistic behaviour is a recurring motif of numerous mangas.

Now, let us specify what is understood as a pay-off. It is the euphoria produced by the satisfaction of a need, for instance, the solving of the lack or loss which has triggered the action according to the narrative algorithm. The positive result of the quest is experienced as pleasure or happiness. Satisfying a need (e.g., food, sex, status, and control) or winning a game (e.g., politics, sport, and discovery) is correlated with the neuro-chemical activation of what neuroscientists call the "reward centers" in the brain through among other processes the stimulation of the dopaminergic neurons (e.g., Burke et al. 2008; Flagel et al. 2011; Iversen et al. 2010; Stuber et al. 2008). But, interestingly, it appears that it is the outcome of a game situation, irrespective of whether it is positive or negative, which provides the euphoria or, in other words, a "high" similar in nature to those states caused by recreational drugs such as cocaine whose chemical structure mimics dopamine. It is the urge to replicate indefinitely the activation of the reward centers of the brain which explain addiction. It is well-known that games (in the common sense of the term, such as gambling or seducing) are addictive to the point that failures do not lessen the pleasure they generate and the urge to repeat the experience. After all, humans also enjoy the spectacle of tragedies which by definition end badly and relish in recounting catastrophic events whether real or fictional. Naturally, this cursory summary of complex and on-going research concerning the part played by neurotransmitters in motivations has greatly simplified the issue of explaining why some narratives, if not all narratives, exercise a great power on human brains and have the capacity to spread among large populations mainly if they are implemented visually independently of the bonds of natural languages since narrative structures and games do not need any particular articulate language to be effective. It is in this sense that mangas have emancipated themselves from their initial contextual culture and can be said to have unbounded themselves while, at the same time, binding under their power the brains of a large constituency of visual readers. They generate an addictive pleasure which is reinforced by the biological signs of their lexicon and the compelling strength of their visual narrative syntax (Cohn 2010).

Conclusion: Are mangas complex memes?

Most of those who have engaged in reflections on signs have emphasized the puzzling intuition that these algorithms are not merely informative and manipulative tools used by interacting organisms (and to a extraordinary extent by humans) but also appear to be endowed with a dynamic of their own which is difficult to understand. C.S. Peirce coined the term *semiosis* to capture the dynamic of signs; F. de Saussure puzzled over the irrationality and unpredictability of languages and other sign systems whose changes over time at all levels occur constantly and spontaneously. Cultural evolution is still an imperfectly understood phenomenon. The notion of ideas as autonomous agencies (Piaget 1915) has haunted humanity for many centuries, even millennia. This notion came to the fore with more clarity some four decades ago under the name of "meme", a neologism which emerged in the scientific and philosophical discourse inspired by some remarks by evolutionist Richard Dawkins (1976). A review of the definitions of this notion and the problems it entails can be found in Aunger (2002).

Any complex semiotic form which spreads among societies with the force of a tide or an explosion (Lotman 2009) can be construed as an algorithm which harnesses and exploits the resources of the brain. It seems that this approach adequately describes phenomena such as the global diffusion of mangas but what "memetic" theories have failed to explain so far is why these parasitic algorithms are accepted and accommodated by their hosts to the point of being cultivated for themselves irrespective of whether they are adaptive or not. The hypothesis which is proposed here is that game theory was the missing theoretical link. Any algorithm which relates to, or implements a dynamic game structure activates addictive neurotransmitters, more specifically but not exclusively the dopaminergic systems, which stimulate the reward centers of the brain. Mangas, animes, and video games may perhaps be best understood through the semiotic models provided by game theory and memetics in the context of the contemporary cognitive and behavioral neurosciences.

References

Aunger, R. (2002). *The Electric Meme*. New York: The Free Press.

Bouissac, P. (1992). Lecture de l'image érotique: théorie d'une pratique. *Cahiers de l'Institut des Langues et des Sciences du Langage*, (Cahier No 1, 1992). Université de Lausanne, p. 5-21.

Bouissac, P. (2009). Eroticon: l'iconicité renversée. *Degrés*, Vol. 139/140, (a) p.1-17.

Bouissou, J.- M. (2006). Japan's growing cultural power: The example of manga in France. *Proceedings of the Conference on Mobile and Pop Culture in Asia*. Kim – Lee et al. (Eds.). Gwangju, South Korea.

Bouissou, J.-M. (2010). Global manga: Why Japanese comics have become a global cultural commodity. In M. Pelliterri (2010), p. 465-478.

Boyd, B. (2009). *On the Origin of Stories*. Cambridge, MA: Harvard University Press.

Budniakiewicz, T. (1992). *Fundamentals of Story Logic: Introduction to Greimassian Semiotics*. Amsterdam: John Benjamins.

Bulliet, R. W. (1975). *The Camel and the Wheel*. Cambridge, MA: Harvard University Press.

Burke, K.A., **T.M. Franz, D.N. Miller, and G. Schoenbaum** (2008). The role of the orbifrontal cortex in the pursuit of happiness and more specific rewards. *Nature*, Vol. 454, p. 340-344.
Chôjû-Jinbutsu-Giga Emaki (2007). Suntory Museum of Art, Tokyo.
Cohn, N. (2010). Meanings of Manga. In *Manga: An Anthology of Global and Cultural Perspectives*, T. Johnson-Woods (Ed.). London: Continuum.
Dawkins, R. (1976). *The Selfish Gene*. Oxford: Oxford University Press.
Flagel, S.B., **J.J. Clark**, **et al**. (2011). A selective role for dopamine in stimulus-reward learning. *Nature*, Vol. 469, p. 53-57.
Gentile, D. A. (2010). Video games affect the brain – for better and worse. In Gordon (2010), p. 72-76.
Gintis, H. (2009). *The Bounds of Reason: Game Theory and the Unification of the Behavioral Sciences.* Princeton, NJ: Princeton University Press.
Glimcher, P. (2003). *Decisions, Uncertainties, and the Brain*. Cambridge, MA: MIT Press.
Gordon, D. (2010). *Cerebrum: Emerging Ideas in Brain Science 2010*. New York: Dana Press.
Greimas, A. J. (1983 [1966]). *Structural Semantics*. Lincoln: University of Nebraska Press.
Hayden, B.Y., **J.M. Pearson, and L.M. Platt** (2009). Fictive reward signals in the anterior cingulated cortex. *Science*, Vol. 324, p. 948-950.
Ito, K. (2005). A history of manga in the context of Japanese culture and society. *The Journal of Popular Culture,* Vol. 38.3, p. 456-475.
Iversen, L. L., S. D. Iversen, S. B. Dunnett, and A. Bjorklund, (Eds.), (2010). *Dopamine Handbook*. Oxford: Oxford University Press.
Johnson-Woods, T. (Ed.), (2010). *Manga: An Anthology of Global and Cultural Perspectives.* London: Continuum.
Kinsella, S. (1999). Pro-establishment manga: Pop-culture and the balance of power in Japan. *Media, Culture, and Society*, 21, p. 567-572.
Kress, G. (2000). *Multimodality in Multiliteracies: Literacy Learning and the Design of Social Futures.* London: Routledge.
Lotman, J. (2009). *Culture and Explosion*. Berlin: De Gruyter Mouton.
Nagatomo, H. (2005). *Draw your Own Manga*. Tokyo: Kodansha.
Pellitteri, M. (2010). *The Dragon and the Dazzle: Models, Strategies, and Identities of Japanese Imagination*. Milano: Tunue Editori Dell'Imaginario.
Piaget, J. (1915). *La mission de l'idée*. Lausanne: Editions La Concorde.
Previc, F. (2009). *The Dopaminergic Mind in Human Evolution and History*. Cambridge: Cambridge University Press.
Renfrew, C. (1987). *Archaeology and Language*. Cambridge: Cambridge University Press.
Schultz, W. (1998). Predictive reward signals of dopamine neurons. *Journal of Neurophysiology*,Vol. 80.1, p. 1-27.
Schwartz, A. and E. Rubinstein-Avila (2006). Understanding the manga hype: Uncovering the multimodality of comic-book literacies. *Journal of Adolescent and Adult Literacy,* Vol. 50.1, p. 40-48.

Stuber, D.G., **M. Klanker, B. de Ridder, M.S. Bowers, R.N. Josten, and A**. **Bonci** (2008). Reward-predictive cues enhance excitatory synaptic strength onto midbrain dopamine neurons. *Science,* Vol. 323, p. 1690-1692.
Tarr, L. (1969). *The History of the Carriage*. Budapest: Corvina Pres.
Tsukamoto, H. (2006). *Manga Matrix: Create Unique Characters Using the Japanese Matrix System.* New York: Collins Design (Harper).
Von Neumann, **J. and O. Morgenstern** (1944). *Theory of Games and Economic Behavior*. Princeton, NJ: Princeton University Press.
Whitt, F. R. and D. G. Wilson (1982). *Bicycling Science*. Cambridge, MA: The M.I.T. Press.