Rethinking Orality I

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Simone Gozzano

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Rethinking Orality I

Codification, Transcodification and Transmission of 'Cultural Messages'

Edited by
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From Oral Theory to Neuroscience: a Dialogue on Communication

Abstract: The purview of this paper is twofold: to set the theoretical framework to ground a fruitful dialogue between oral theory and neuroscience and to apply neuroscientific findings to the Homeric model of communication as shown particularly in the Odyssey, where a singer or storyteller (Phemius, Demodocus, and Odysseus) sing to an audience gathered in a banquet. A primary concern of the paper is to explore the bearing of neuroscientific research on aspects of cognition involved in interactive communicative settings, where verbal and emotional aspects are involved. It is shown that Homeric passages identify silence, enchantment and pleasure as the three interconnected factors of successful and attuned verbal communication and that they make perfect sense when seen from the perspective of neuroimaging studies, which further illuminate the cognitive articulation underlying those factors. In the enriched hermeneutic framework provided, the Homeric idea of singing, sharing and acquiring knowledge as a deeply emotional experience is shown to possess a firm ground in neurophysiology. Some prospective methodological remarks on the meta-dialogue between Classics and neuroscience conclude the paper.

Keywords: Homer; communication; empathy; neuroscience; orality.

1 Prefatory Remarks: Homeric Scholarship and Branching Out

A century ago, the Homeric quest(ion) brought Milman Parry and Albert Lord on adventurous trips to the Balkans, where the young men studied and recorded the songs of 20th century Serbo-Croatian poets, the *guslari*.[1] While conventionally marking the beginning of the so-called Oral Theory, their intellectual enterprise was at the same time a bold move that physically and epistemologically displaced the framework for understanding Homeric texts, from libraries to field-

1 Parry 1971; Lord 1960. Recordings available at https://curiosity.lib.harvard.edu/milman-parry-collection-of-oral-literature. Debate and definitions on and of orality thrive, of course; for a recent assessment see Ready 2019, 1–9.

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work. Ever since, for students of Homer, to deal with orality is to branch out into unchartered scholarly territories.

Parry and Lord's scholarly *experience* itself was more influential and far-reaching, I daresay, than its specific results – and far beyond the field of Classics. By considering Homeric poems as oral poetry Parry "distanced them from traditional methods of philology and literary criticism, delivering them to a wider *anthropological* perspective".[2] As remarked by Sbardella, when Parry's research showed that the peculiar character of Homeric poems can be better explained by comparing them to the poetry of an illiterate Montenegrin storyteller such as Avdo Mededovič than to the most refined and learned philologist "the effect was like a bomb affecting fields way beyond classical philology".[3] So much so that at the very onset of his enormously influential book, *The Gutenberg Galaxy*, Marshall MacLuhan declares: "The present volume is in many respects complementary to *The Singer of Tales* by Albert B. Lord".[4]

Oral theory was, however, no anthropology *per se*. Parry, as a matter of fact, studied linguistics at Paris with Meillet; as Rossi rightly remarks, in Parry's work the anthropological perspective was "almost totally implicit".[5] If we tend to obliterate this distinction, as we do, it is because Parry and Lord's method and practice were definitely, if not declaredly, comparatist and anthropological. Only some decades after Parry's trips, in the '60s of the last century, a vibrant post-colonial awareness of culture led anthropological studies to flourish and intertwine with orality. Intellectual explorers of the likes of Ruth Finnegan, Isidore Okpewho and Jean Vansina opened the path for classicists interested in orality and willing to learn the ways of West African Bantu singers and Limba story-tellers to better understand Homeric textual practices.[6] Such a virtual travel to Africa and beyond was another powerful mind-opener and an audacious intellectual move for many Greek philologists and historians, who learned to deal with a "past transmitted by word of mouth", and to understand Herodotus with the

2 Rossi 1979, 75.

3 "Può essere spiegata meglio alla luce della comparazione con la poesia di un cantastorie illetterato montenegrino, figlio di un macellaio, come Avdo Mededovič che non dai distillatissimi metodi di analisi della più raffinata e dotta filologia, lo choc è stato talmente grande da produrre [...] un vero e proprio terremoto che si è spinto ben oltre i limiti d'interesse della stessa filologia classica", Sbardella 2006, 110.

4 McLuhan 1962, 1.

5 Rossi 1979, 75.

6 See e. g. Vansina 1961, Finnegan 1967, Finnegan 1970, Okpewho 1992.

help of African genealogists, uniting the tools of anthropology with the traditional historical methods.[7]

Ever since, oralistic approaches to Homeric poems has continually made the most from multidisciplinary perspectives, comparatism and anthropology at the leading edge, thanks to which powerful insights and paradigms have been produced.[8] Furthermore, to engage with modern and non-hegemonic cultures continues to decolonise Homer from antiquarian approaches, creating a perspective on literature far from Western ethnocentrism and displacing epic poems from their position as the first Western masterpiece of a brilliant author to that of a witness to an orally born, collective creation.[9]

This bird's eye view highlights two great seasons of orality studies and Homeric scholarship, during which the vibrant exchange that began in the 1920s with linguistics continued in the 1960s, and down to the 1990s with anthropology and comparatism; this long wave of dialogues has not ended, to be sure, but the time is ripe to open new doors and start new dialogues with contemporary approaches.

It is in keeping with this spirit and century-long tradition that we branch out to a young and promising disciplinary field, namely neuroscience, which in the last thirty years has produced a step-change in our understanding of the human mind and communication. This is not entirely new ground: Elizabeth Minchin has the merit of having introduced cognitive studies to the study of Homer; since her pioneering contributions, scholars slowly but surely have followed suit, enhancing our awareness of the potential of cognitive studies for Classics,

7 Luraghi 2001b, 10. On the impact of African oral literature on Greek history see particularly Giangiulio 2007.

8 Of course, the picture is not as irenic as it seems. Consensus on the relevance of oral studies for Homeric scholarship is not catholic, and, if in 1979 Rossi claimed "Omero non si può più leggere come si faceva prima di Parry, e in verità sono pochi ormai ad attestarsi sulle vecchie posizioni" (76 – 77), today not all scholars of Homer are as keen to look at the same broad landscape, and to see orality as fundamentally relevant to the understanding of Homer. See for example the articulated defence of Ready 2019, 9 against "M. L. West' admonishment 'to shake the oralists off our backs'", in reference to West 2003, 14, a defence which implies that orality as legitimate tool for Homerists still needs to be justified and salvaged. Consistently with the premises of the present volume, this contribution takes, rather apodictically, orality for granted; the issue however does deserve closer scrutiny, but this would largely fall outside the scope of this contribution. On this point see also Ercolani in this volume, 89 – 91.

9 See the interview "decolonizing antiquity" in Svenbro 1984, 8 – 22 (the Italian edition of Svenbro 1971). See also Rossi 1979, 75, on oral theory assigning to Homeric poems a totally different status than that of all other works classical philologists dealt with, "uno *status* totalmente diverso da quello di tutte le altre opere con cui i filologi classici avevano a che fare".

within and without Homer.[10] In common scholarly discourse, both "cognitive studies" and "neuroscience" are used as umbrella definitions, and have come to encompass a wide and heterogenous range of disciplines, from cognitive linguistics to artificial intelligence, and whose wealth is well represented in the range of case-studies of the recent *Routledge Handbook of Classics and Cognitive Theory.*[11] While broadly following this avenue, however, this paper illustrates a more specific path of inquiry, whose scope is circumscribed to the dialogue between oral theory, Homeric studies and neuroscience *stricto sensu*, that is the specific field of neuroimaging-based brain mapping research.[12]

The purview of this paper is therefore twofold: to set the theoretical framework to ground a fruitful dialogue between oral theory and neuroscience and to apply neuroscientific findings to the Homeric model of communication.

2 Our Head from Within: The Specific Contribution of fMRI Based Research. Potentials and Caveats

Neuroscience is a very young ramification of cognitive studies and is based on the new instrumental methods of neuroimaging, and chiefly on Magnetic Resonance (MRI) and functional Magnetic Resonance Imaging (fMRI), whose discovery dates to thirty years ago. The fMRI technology uses magnetic potency for a far more accurate representation of brain activity in terms of resolution and dynamic data then was formerly available with electrophysiological monitoring methods (EEG) and PEC (based on radioactive tracing).[13]

In 1990 the fine-tuning of BOLD-fMRI by Seiji Ogawa represented a significant improvement in our representation and mapping of mental processes and opened the possibility of observing our mind "from within".[14] The nuts and

10 See Minchin 2001.

11 See Meineck *et al.* 2019a. On the development of cognitive studies see Gozzano in this volume, 1–17.

12 For important perspective on cognitive studies and oral poetry see Antovic/Pagan Canovas 2016, and particularly Minchin 2016.

13 See Ogawa/Sung 2007.

14 This accomplishment was built on the former invention of MRI by, foremost, Raymond Damadian, Paul Lauterbur and Peter Mansfield. Interestingly, on the precedence of the patent there are competing claims; Lauterbur and Mansfield were bestowed with the Nobel Prize in 2003 for the invention, while Damadian, who scanned the first MR image in 1977, was excluded. As Filler 2009, 13, pointedly argues: "when the Nobel Prize for invention of MRI scanning was

bolts of this instrumental method is to scan which brain areas are activated in correspondence with a specific cognitive task performed during the experiment; the activity is established only indirectly, by the variation of the level of oxygen present in the blood vessels (oxyhaemoglobin) of a given brain site.[15] The higher the level of oxygen required, the greater the purported neural activity is assumed by fMRI analysis. In this, fMRI builds on the century-old finding that increase in blood flow is connected to a detectable increase in brain weight and the subsequent inference that the activity of our brain demands more energy – haemoglobin – than any other part of our body. This discovery must now be credited to Angelo Mosso and his brilliant experiments of the 1880s; the spreading of his findings, however, was hindered by the limited knowledge of Italian in scientist milieus of the time, and the attribution is commonly assigned to the British scientists Charles Smart Roy and Charles Scott Sherrington who arrived at the same conclusions as Mosso a decade afterwards.[16]

FMRI-based analysis seeks to establish the general correspondence between the sites activated in our brain and a specific activity, be it sensorimotor, linguistic or otherwise, in order to detect the role and function of underlying brain sites and networks. Its scientific impact is major and its application has been both extensive and debated in diverse fields, from medicine to humanities and social sciences, from language to emotions and music. In recent years, in particular, theatrical study and Greek theatre have found a particularly thriving application of neuroimaging, with the work of Roberto Nicolai, Felix Budelmann, Pat Easterling, and, more systematically, Peter Meineck.[17]

Our primary concern here is to explore the bearing of neuroscientific research on aspects of cognition involved in interactive communicative settings, where verbal and emotional aspects are involved. Before turning to an experimental application of neuroscientific findings to Homeric texts, however, it is imperative to state an epistemological premise and a caveat.

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announced in 2003, Damadian was snubbed and the award went to two more traditional scientists, Paul Lauterbur and Peter Mansfield. Damadian is a creationist so he accepts magical and divine intervention in biology. That has made him an intellectual martyr for the creation science crowd. Nonetheless, his omission from the Nobel Prize is a Rohrsach test meaning different things to different observers". For the history of fMRI see also Poldrack 2008.

15 "FMRI is based on BOLD (Blood Oxygenation Level Dependent) signal change that is due to the hemodynamic and metabolic sequelae of neuronal responses", Ogawa/Sung 2007.

16 Sandrone *et al.* 2014.

17 See Nicolai 2007, 102–104, developed in Nicolai 2010, largely based on the mirror neuron system; Easterling/Budelmann 2010 on "reading minds"; Meineck 2017, where the contribution of brain research is used extensively to illustrate cognitive and sensorial aspects of performance with ground-breaking results.

The point must be expressed rather bluntly: fMRI based neuroimaging does *not* reveal to us the brain as such. The suggestive images produced by the machine are not the *Ding an sich*, but a scholarly, inferential representation. This warning comes from neuroscientists themselves:

> Not even the most ardent advocates of fMRI research would support a strong neurorealist viewpoint. [...] fMRI is one technique among many available to the scientist. If used improperly, it can lead to inconclusive or erroneous conclusions (like any other technique).[18]

A specific caveat must be expressed moreover since neuroscience has received growing media coverage, as enthusiastic as often acritical. The results of the brain scan performed by fMRI allow us to construct a *representation* of specific brain areas' activation during the performance of certain tasks, the degree of likelihood and indicativeness of the actual mental processes heavily depends on the protocols (mainly statistical) scientists use to transcode the thousands of snapshots (voxels) into interpretations – which fundamentally depend on epistemological premises. Ogawa, the father of BOLD fMRI, states this clearly:

> With non-invasive neuroimaging, the functional role or specificity of a site is only *established indirectly*. This is because we cannot measure the actual input to or output from a site. The only means we have for controlling the site's activation is through the external or internal stimulus we give to the brain. It is not known which aspects of the original stimulus are delivered to the site or how site-specific processing proceeds. Until we understand the information processing entailed by the local input-output relationships, we can only try to *infer* this processing by clever manipulations of the stimuli we give to the brain.[19]

However thriving and thrilling the results, therefore, they should be treated for what they are: inference and working hypotheses, not a direct account of mental processes. FMRI images come in different colours, and admittedly the impact is certainly arresting, giving the impression of accessing our mind directly, with the impending danger of exchanging the map for the territory:

> Because fMRI research carries an air of technical mystery-unlike surveys or laboratory measures of behaviour – it seems more scientific to a lay audience. The images it creates can seem like snapshots of the brain at work, especially when one glosses over the enormous conceptual gap between those images and the underlying experimental design. In any case, neurorealistic language is endemic to descriptions of fMRI studies in the popular media [...]. Several errors are common, including the overstatement of results, a failure to discuss limitations, and the tendency to treat fMRI data as uncritical proof of controversial claims.

18 Huettel *et al.* 2014, 486.

19 Ogawa/Sung 2007 (emphasis added).

> Even experienced fMRI researchers are not immune to the misrepresentation of results. A particularly common problem lies in generalizing from brain activation to cognitive process, in the form of reasoning known as reverse inference.[20]

The real challenge lies in interpretation, which in turn largely depends on paradigms: from computational models to distributed cognition, neuroscientists do not agree on their use of cognitive metaphors to explain what the mind "is like".[21] If neuroscience therefore is not shorn of doubts and debate, any scientific truth that may be claimed is by definition both changing and subject to successive transformation as research goes on. It is perhaps not altogether otiose the reminder that hard science is as historical as any, as the pivotal work of Thomas Kuhn crucially demonstrated decades ago.[22]

The historical dimension is also an important reminder not to devaluate previous brain research. As it has been noted, Angelo Mosso was aware of the same epistemological conundrums surrounding brain research, and intriguingly, "work he published more than a century ago already contains many of the major themes and difficulties that characterize today's functional neuroimaging techniques"; a sobering lesson by all means.[23]

We would better shun therefore a naive idealization of neuroscience as a new truth about the mind, an attitude largely resting upon an implicit epistemological hierarchy according to which the so-called hard sciences have a direct way of accessing the truth, a particularly resistant myth of our time, which also implies the inferiority of humanities vis-à-vis the so-called "hard-sciences". On the contrary, this contribution builds on the – admittedly grandstanding but not isolated – assumption that as far as mind and communication are concerned, it is high time to build a metadialogue between humanities and sciences, such as "to automatically collapse ontological barriers between physical, biological, mental, and social worlds";[24] we may thus compare scholarly maps and ideally draw a more capacious map which would better represent the complex phenomenon of human communication – be it "oral" or otherwise.

As I hope to show in what follows, our understanding of the cognitive procedures involved in communication can be greatly enhanced, strengthened, and

20 Huettel *et al.* 2014, 486 and 513. For more recent criticism see Taylor 2020, Cohen 2020.
21 See, for example, Meineck *et al.* 2019b, 2f. On distributed cognition see Anderson *et al.* 2018, and the *History of Distributed Cognition Project* of Edinburgh University.
22 See Kuhn 1962.
23 Sandrone *et al.* 2014, 627.
24 Attanasio/Oliverio 2012, 93. For this perspective see, notably, Bateson 1972, Edelmann 1992.

widened by neuroimaging, and the criss-crossing of maps, modern and ancient, of the territory of communication can produce a significant development.[25]

3 Successful Communication and Knowledge-Sharing in Homeric Poems: Working Assumptions

I will turn now to a Homeric case-study of successful oral communication, where neuroscientific approaches will integrate the understanding of the cognitive processes at stake. To speak of communication is no simple task, and I will state a few assumptions.

1. Today we are aware of the fact that communicating is a multimodal process that goes far beyond the "thinner more parochial view of communicating, as if it is limited to words or, at best, to recent expansions in visual images and the ramifications of currently expanding information technologies", as Ruth Finnegan reminds us. Communication includes a full multisensory range of "modes by which people interconnect in the world – the multiple bodily resources we can draw on and the multifarious arts and artefacts which we humans create".[26]

2. In what follows I will use interchangeably the terms addresser/singer and addressee/audience.[27] By these terms I refer to the basic triadic scheme of sender-message-receiver for simplicity's sake, but will also try to make this simplicity more complex to take into account the fundamental reciprocity and interrelation of any act of communication. This scheme projects an arguably linear model of communication: a message is borne in the mind of the addresser, travels through the environment and is received by the addressee, whereas the action of communicating is something that happens in-between, and is by and large a common enterprise, a sharing of knowledge rather than an "imparting" of knowledge in a teaching-learning one-way, top-down process, as I hope to demonstrate.

25 On the metaphor of the map and territory from the point of view of epistemology see Bateson 1972, 407–408, 455 ff.

26 Finnegan 2013, xv, 3–32.

27 These expressions follow the terms used by Jakobson in the model of communication proposed in 1960, and which has been the most common in linguistic and semiotic literature as well as in Greek literature.

3. The following analysis equates epic communication with ordinary communication, an assumption argued by Jesper Svenbro, who explains it as "l'unité de l'émission et de la réception, leur *hic et nunc*"; in this "l'interlocuteur normal et l'aède se distinguent du récitant d'un texte déjà fixé. Pour ce dernier, la problématique se réduit aux questions esthétiques concernant l'exécution du texte; pour les deux premiers, il s'agit d'un choix multiple qui concerne l'aspect 'esthétique' aussi bien que tout ce que la situation pourrait exiger dans sa complexité sociale".[28]

4. In the world depicted by Homeric poems, namely an oral society, knowledge is both socialized and dynamically transmitted through epic songs. In this sense we may speak of epic performance as the venue for sharing knowledge, in modern terms learning and teaching. Gilbert Murray was the first to interpret Homeric epics as a vehicle of cultural transmission, that is "some form of Traditional Book, which, like the *Song of Roland*, or the *Niebelungenlied*, or even the Pentateuch, has reached its present form by a process of gradual growth and constant rehandling".[29]

In 1963 Eric Havelock introduced the fortunate expression "Homeric (or tribal) encyclopaedia", to suggest that Homeric poems functioned as a great container to store a society's various know-hows, basic tenets and basic knowledge, becoming thus transmitters and a "compilation" of inherited lore.[30] He argued in particular that "the warp and woof of Homer is didactic", and referred to the matter or the poems as "educational material".[31]

Havelock speaks of an encyclopaedia *sui generis*, much as Murray's "traditional book", to be sure, but it is important to highlight two shortcomings inherent in the widespread metaphor of "tribal encyclopaedia". As a quintessential product of a literate culture, encyclopaedia is what epic was not, that is, the medium of a culture that stores knowledge on a material, disembodied support with a virtually unlimited availability, extension, virtually everlasting, and, most importantly, unchanging. These characteristics have made literate cultures more prone to of ideas and beliefs of fixation, attributing greater value to verbatim and fixed content knowledge. This has furthermore led to an objectification of knowledge, typical of book cultures, whereas oral communication is subject-oriented. The unlimited, reified, and ever-increasing accumulation of knowledge granted by a written medium like an encyclopaedia, however, is not only impos-

28 Svenbro 1976, 17.

29 Murray 1934, 136. The book is based on Murray's Harvard Lectures delivered in 1907.

30 Cf. Plat, *Resp.* 10 599c8, 606e3.

31 "Tribal encyclopaedia" is used to paraphrase Plato's conception of Homeric poetry as covering all branches of knowledge both social and technical. Havelock 1963, 61–86 (quote at p. 61).

sible in an oral or aural cultural environment but also foreign to the cognitive procedures involved in any transmission of information. Lore was subject to continuous adaptation and updating: in an oral/aural society knowledge is always embodied, stored in a living support – people's memory – and therefore is subject not only to limitation, but also, perhaps more importantly, to the selection and fluidity of information, as oral cultures are by nature flexible and open to constant updating and adaptation of information.[32] Homeric poems acted certainly both as a social collector of traditional community lore and as a means of transmission of that lore;[33] at the same time, as Ercolani has well summarized, traditional knowledge was taught by means of public poetic performances. Singers could enlarge or update the traditional contents, if need be. This process rested on a continuous interactive exchange where, as we will see, sharing knowledge was a subjective phenomenon that depends on a constant attunement, or "coupling", between the protagonists in the exchange.[34]

4 Signs of Successful Communication: Comparing Homeric and Neuroscientific Maps

Homer describes key, paradigmatic scenes in the two main settings of Ithaka and Scheria, where three different singers perform their songs successfully for a privileged audience. In Ithaka (book I) Phemius sings the *nostoi*, the return of the heroes from the Trojan war to the usurping princes occupying the hall of Odysseus, the last of the Trojan veterans still engaged in his *nostos*. In Scheria (books VIII to XII), Demodocus and Odysseus sing to the Pheacian audience gathered in a quasi-perpetual banquet. Interestingly, in both settings the poet constructs a

32 Actually, Homeric poems were in a state of flux until at least the late archaic age but they continued to be heavily readjusted, changed, and manipulated well throughout the Hellenistic age. Among well-known examples are: extant "alternative" *prooimia* in the *Iliad*, the references to alternative endings of the *Odyssey*, Pisistratean recension and Hellenistic Homeric papyri.
33 Such lore can be usefully summarized in the terms *nomos* and *techne*, that is, "what is fitting", public laws, habits, manners, behaviours, ritual prescriptions and procedures on the one hand, the *nomos*, and on the other the various techniques, ranging from warfare techniques to navigation, rituals, meals etc. The line between *nomos* and *techne* can and does overlap as "so much of social behaviour and deportment had to be ceremonial, or had to be recorded ceremonially, which may amount to very much the same thing", Havelock 1963, 80.
34 Ercolani 2006, 72. See Svenbro 1976, 16 – 45. Murray's definition of "traditional book" may seem more adequate, although embedded in the anachronistic concept of book, it uses the idea of tradition which may suggest a more fluid content.

particularly skilful *mise en abyme:* the narration of the *nostoi* is recursively embedded in the narration of the last *nostos*, while in Scheria Demodocus sings of the Trojan war and the *Iliou persis* to one of his protagonists. Odysseus, the protagonist of the story, will take turns with Demodocus to sing the tales of his adventurous voyage from Troy to Scheria which occupies books IX-XII.[35]

The setting is the festive banquet, which stars the singer as addresser *par excellence* and the elite community, leisurely gathered at the noble banquet as audience.

These scenes describe epic performance as an ideal communicative situation, in which the exchange of knowledge takes place most successfully, giving rise to a wealth of paradigmatic lines and phrases. Let us single out the recurring factors of a successful communication.

1 Attentive Silence

The first scene is set in Ithaka, straight after the dialogue between Telemachus and Athena disguised as Mente. Upon the departure of the latter, Odysseus' son turns back to the hall where he finds the suitors listening to Phemius, the Ithacan singer:

> τοῖσι δ' ἀοιδὸς ἄειδε περικλυτός, οἱ δὲ σιωπῇ
> ἥατ' ἀκούοντες: ὁ δ' Ἀχαιῶν νόστον ἄειδε
> λυγρόν, ὃν ἐκ Τροίης ἐπετείλατο Παλλὰς Ἀθήνη
>
> For them the famous minstrel was singing, and they sat in silence listening; and he sang of the return of the Achaeans – the woeful return from Troy which Pallas Athena laid upon them (*Od*. 1, 325 – 327).

These lines photograph the auspicious interactive setting of aedic performance through the formula τοῖσι δ' ἀοιδὸς ἄειδε περικλυτός, οἱ δὲ σιωπῇ / ἥατ' ἀκούοντες *Od*. 1, 325 – 326, which not only epitomizes the three main elements involved in epic communication, namely singer, audience and message (the song) but also gives the first indication for assessing the success of communication: silence, *siope*.

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35 Cf. *Od*. 1, 11 – 15. Straight after the *prooimion* the singer explicitly informs that he will sing the last of the nostoi, since "all the others were home" (11 – 12) and "he alone" was far on his way, "yearning his homecoming and his wife" (13). On the "anomalous position" of Odysseus as reciter of his own *kleos* see Segal 1983, 26 ff.

While this non-verbal linguistic signal recurs in every setting as an obvious precondition for being heard distinctively, upon closer look silence lends itself to multiple meanings: an attitude of listening, a marker of involvement, a manifestation of agreement on the part of the audience as well as their pleasurable absorption. This can be asserted not only in agreement with the other occurrences where silence is mentioned (see below), but can also be deduced *e contrario* in the same passage. Whereas the singing of the *nostoi* is received with appreciative silence by the suitors, hoping for a foreboding of a similarly woeful return for Odysseus, in Penelope it elicits a dissonant reaction signalled by weeping (*Od*. 1, 336 ff.). As I will show in more detail elsewhere, weeping signals unsuccessful communication and the rupture of the implicit alliance between speaker and listener, that is, the embedded pleasure experienced in the communication.

As the context makes clear, the *siope* points to a positive, *attentive silence*, wherewith the addressee is absorbed, a "listening strategy" which testifies to the deep concentration, synchronization and enjoyment at hearing the message. This reflexive silence manifests moreover a deep appreciation of the performance and hence its success, as will be clear from its close association to captivation and pleasure. Finally, silence bonds the addressees, united by this common outward expression signifying an intense "sense of sharing".[36]

From the point of view of neuroscience, silence can be thought of as a condition for listening attentively to what the addresser is communicating. Neuroscientific research on attention has highlighted the pivotal role played by *expectancy*, a state of mind consisting in being geared toward the oncoming of a certain event (the stimulus). When we are expecting something to happen, like a vision (a visual stimulus) or a sound (an auditory stimulus), our mind engages in a top-down process whereby high-level brain areas "alert" and hence modulate the activity of sensory-specific areas to perceive the stimulus in question.[37] This sheds light significantly on the so-called "horizon of expectancy", or the role of "anticipation" in the audience. In particular, the expectancy of a given event has been shown to influence the activity of the visual areas, and the effects of selective attention have also been observed the for auditory modality.[38] This illuminates Homeric *siopé* as an active silence, which manifests expectancy but activates attention and captivation. Not surprisingly, silence plays a privileged role in the auditory modality: a recent study based on neuroimaging has investigated how silence impacts auditory activity, and the results show an increase of activ-

36 On which see Harumi 2011, 261.

37 Rees/Lavie 2001; Corbetta/Shulman 2002.

38 Petkov 2004 *et al.*

ity in the auditory areas when "attentively listening in silence to detect a sound when the auditory scene remains silent".[39]

We can connect silence therefore to the disposition of the audience to listening and learning what is going to be sung, a disposition which can be reinforced or even triggered by the context. The ideal audience, extolled by Odysseus' words, and hinted at in *Od*. 1, 339 – 340, attentively expects to hear a precise stimulus, the singer's song, and is prepared for the song to bring them pleasure and to be enchantingly gripping. They paradigmatically manifest their disposition by remaining silent. The convivial context, the proxemics (being seated) help them prime themselves for an experience that will be captivating, thrilling – due to its novelty – and will elicit the addressee's attentional mechanisms. In the context of a performance as well as in common experience, therefore an intent silence may indicate fascination as well, the next factor.

2 Enchantment

Two formulary lines encapsulate the second scenario of effective and captivating communication:

> ὣς ἔφαθ', οἱ δ' ἄρα πάντες ἀκὴν ἐγένοντο σιωπῇ,
> κηληθμῷ δ' ἔσχοντο κατὰ μέγαρα σκιόεντα
>
> So he spoke, and they were all hushed in silence,
> and were spellbound throughout the shadowy halls (*Od*. 11, 333 – 334 = 13, 2 – 3).

Kelethmos, "enchantment" emerges in these lines as the second indicator of successful communication, associated with silence as if they were one and the same. Both occurrences refer to Odysseus' singing of his marvellous adventures. The first marks the end of the first of the hero's autobiographic tales at the coming of night, followed by the hearty encore of Alcinoos and his court, compelling Odysseus to resume the tale; the second occurrence coincides with the closure of the tales. The association of silence and enchantment is explicit in these lines, where the narrator describes the bewitching effect of Odysseus' song on his audience. We may somehow strain the translation as "they fell in silence, since they were kept by enchantment", whereby silence is the outward sign of the internal cognitive disposition of concentration and pleasure.

39 Voisin *et al*. 2006, 273, 277.

In *Odyssey* I, Phemius' singing, as we have seen, elicits a painful weeping in Penelope, who asks the singer to change the subject and addresses him with a general comment about the standard competence of singers:

> Φήμιε, πολλὰ γὰρ ἄλλα βροτῶν θελκτήρια οἶδας,
> ἔργ' ἀνδρῶν τε θεῶν τε, τά τε κλείουσιν ἀοιδοί·
> τῶν ἕν γέ σφιν ἄειδε παρήμενος, οἱ δὲ σιωπῇ
> οἶνον πινόντων [...]
>
> Phemius, many other things thou knowest to charm mortals, deeds of men and gods which minstrels make famous. Sing them one of these, as thou sittest here, [340] and let them drink their wine in silence [...] (*Od*. 1, 337–340).

In this passage, the distinctive quality of a singer (*oidas* 337) is to mesmerise mortals, *thelkteria broton:* that is, to produce a message with a spell-binding effect, deeply involving and emotional. The term *kelethmos* falls in the same semantic sphere of *thelkterion*, "enchantment", "fascination", implying a deep enmeshment in the process of storytelling. As Carastro asserts: "Les aèdes, par leur inspiration divine et leur instrument aux sonorités aiguës, ont un pouvoir d'emprise sur l'âme des auditeurs qui se manifeste par différent aspects de la réjouissance, *terpsis*, à un véritable effet médusant, *kelethmos*, comme dans le cas du récit fait par Ulysse, au palais des Phéaciens".[40]

The same effect is evoked by an admired Eumelus who praises Odysseus' competence as storyteller to queen Penelope:

> εἰ γάρ τοι, βασίλεια, σιωπήσειαν Ἀχαιοί.
> οἷ' ὅ γε μυθεῖται, θέλγοιτό κέ τοι φίλον ἦτορ. [...]
> [...] ὡς δ' ὅτ' ἀοιδὸν ἀνὴρ ποτιδέρκεται, ὅς τε θεῶν ἓξ
> ἀείδει δεδαὼς ἔπε' ἱμερόεντα βροτοῖσι,
> τοῦ δ' ἄμοτον μεμάασιν ἀκουέμεν, ὁππότ' ἀείδῃ·
> ὣς ἐμὲ κεῖνος ἔθελγε παρήμενος ἐν μεγάροισι
>
> I would, O queen, that the Achaeans would keep silence, for he speaks such words as would charm thy very soul. [...] he had not yet ended the tale of his sufferings. Even as when a man gazes upon a minstrel who sings to mortals songs of longing that the gods have taught him, and their desire to hear him has no end, whensoever he sings, even so he charmed me as he sat in my hall (*Od*. 17, 513–514; 518–521).

Eumelus describes a virtual scene in which Odysseus' storytelling would enthral the suitors, hushed in silence, just as the swineherd was enchanted by Odysseus' wonderful tales. The hero is not a singer *stricto sensu*. However similar to one he

40 Carastro 2006, 139.

may be, he differs from an *aoidos* on several points, first of all the delivery, since he does not sing but tells, and while the gods are the source of an *aoidos*' song, Odysseus is at one and the same time the tales' inspiration and their protagonist. In what way does he resemble a singer then? In the effect of enchantment that he produces in his audience (*ethelxe* 521). This indirectly confirms that the factors at play in structured epic-singing reverberate in storytelling and, arguably, in any act of successful communication.[41] Interestingly, Radloff described in very similar terms successful communication on the part of the *akyn* (the Kirghiz epic performer):

> one can observe everywhere that the audience takes delight in a well-formed speech, and that they know how to determine whether a speech is perfected in form. *Deep silence* surrounds the orator/performer if he knows *how to mesmerize his listeners*; they sit, bent forward with their eyes glowing, and listen to the speaker's words.

This mutual agreement among the protagonists of communication is implicit in the very idea of enchantment: the singer's capacity to tune in to the audience and the latter's willingness to be transported and enchanted; this agreement has been termed "empathy",[42] and "transportation",[43] but in the light of neuroscientific findings, as we will see, we would better speak of consonance or sympathetic engagement.[44]

3 What about Pleasure?

The third encompassing sign of engaging communication in epic performance is pleasure, and a deeply sensual one. So much comes to the fore in the words of

41 On the difference between Odysseus and the singer see Carastro 2006, 137; Capra 2007, 286–290. Outside the performance's context, we may mention in passing the song of the Sirens. This is the ultimate scenario of a captivating song, where the constitutive elements of the previous communicative settings are heightened to the bitter end. As Segal 1983, 46ff., suggests, the dead calm surrounding the isle of Anthemoessa may evoke the silence surrounding the aedic performance, the enchantment provoked by the Sirens' song taken to its most extreme form: eliciting a paralysing and ultimately deadly effect. Sirens and singers are akin to each other, as Carastro expresses: "avec les Sirènes, figure extrême de l'aède homérique, ces caractéristiques abandonent la sphère divine pour s'acheminer vers le mond des hommes" (Carastro 2006, 139).
42 Russo/Simon 1968, Rossi 1979, 122–124.
43 See below, 188.
44 On empathy as a key factor of theatrical communication in the light of neuroscientific findings, see the excellent treatment in Meineck 2017, 204ff. and *passim*.

Telemachus, who tries to divert the suitors' erotic arousal at the sight of Penelope climbing the stairs back to her bedroom (ἠρήσαντο παραὶ λεχέεσσι κλιθῆναι, "they craved to lay down in bed with her):

> μητρὸς ἐμῆς μνηστῆρες ὑπέρβιον ὕβριν ἔχοντες,
> νῦν μὲν δαινύμενοι τερπώμεθα, μηδὲ βοητὺς
> ἔστω, ἐπεὶ τόδε καλὸν ἀκουέμεν ἐστὶν ἀοιδοῦ
>
> Wooers of my mother, overweening in your insolence,
> for the present let us take pleasure from the feasting,
> but let there be no brawling; for this is a goodly thing, to listen to a minstrel (*Od*. 1, 368–370).

In this passage, Telemachus succeeds in checking the suitors' sexual appetite by luring them into a different pleasurable reward, the enjoyment of the feast and listening to the song. Later in the same scene, the poet underlines twice that song and dance did actually pleasure everyone (τέρποντο, 422; τερπομένοισι, 423). The vocabulary here brings up the same semantic connection: the act of singing, *aoide*, is explicitly called *himeroessa* (*Od*. 18, 304), an adjective meaning "charming, sweet" as well as "exciting desire"; the tales are equally "seductive", *himeroenta* (ἔπε' ἱμερόεντα, *Od*. 17, 519). The connection to *himeros*, "erotic desire", is revealing of a consistent association of the effect of listening to epic songs with the reward of erotic pleasure-inducing experiences.[45]

In another passage from the Phaeacian banquet, the association of pleasure to listening to songs is explicitly asserted as a precondition of any act of epic communication by Alcinoos, who silences Demodocus' singing on this very ground:

> κέκλυτε, Φαιήκων ἡγήτορες ἠδὲ μέδοντες,
> Δημόδοκος δ' ἤδη σχεθέτω φόρμιγγα λίγειαν·
> οὐ γάρ πως πάντεσσι χαριζόμενος τάδ' ἀείδει
>
> Hear me, leaders and counsellors of the Phaeacians, and let Demodocus now check his clear-toned lyre, for in no wise to all alike does he give pleasure with this song (*Od*. 8, 536–543).

If song is not gratifying for all the addressees then it fails its goal, its *raison d'être*. In the *Odyssey*'s metapoetic passages therefore, both silence and enchantment find their place in the ideal communicative setting insofar as they are deeply connected to *terpsis:* "the goal of the singing is *terpein*, "delighting". *Terpein* –

45 Cf. *Od*. 5, 17; 8; 367–368 τέρπετ' ἐνὶ φρεσὶν ᾗσιν ἀκούων ἠδὲ καὶ ἄλλοι; 429; 17, 606.

or *terpesthai* "to let oneself be delighted" from the perspective of the listener – is a out-and-out technical term indicating the pleasure produced by the song".[46]

Arousing pleasure is the ultimate goal of singing, whose success is measured by the enjoyment it effects on the audience. Tellingly, Phemius, the singer of Ithaka, is called Terpiades (*Od*. 22, 330), which we may render as "the son of Pleasure" a patronymic which hints both at a family profession, as Sbardella points out in this volume, and the quintessential competence of any singer, that of arousing pleasure.

The association of pleasure with performance and hence with learning (a new song in epic context) continued beyond the period of Homeric poems. Up to the 5th century at least, sensual pleasure was considered inseparable from any process of acculturation and part and parcel of persuasion and poetic reception. Listening to poetry and attending a performance are phenomena as connected to learning as they are to engaged involvement. From Homer to tragedy, one learns by being emotionally moved and involved. The entire two-way communicative process of information transmission, as well as persuading and being persuaded, are deeply interwoven with enjoyment; as Goldhill asserts, in archaic Greece, the educational form of *paideusis* involved first and foremost emotions and pleasure.[47] The pleasure of weeping and the pleasure of laughing, the pleasure of listening to words and the pleasure of seeing a world evoked by storytelling and performing.[48] As we will see, the final and encompassing characteristic of the good Homeric way of sharing knowledge perfectly matches the way neuroscience speaks about learning.

46 Ercolani 2006, 136: "il fine del canto è *terpein*, "dilettare". *Terpein* – o, dalla prospettiva dell'ascoltatore, *terpesthai*, "lasciarsi dilettare" è un vero e proprio verbo tecnico che indica il piacere che il canto produce". The word *terpsis*, *terpomai*, in Homer is connected to a physically related response involving emotions both painful and joyful. In a well-known scene, after Priam's supplication, Achilles is caught by a desire (*himeros*) to weep and having wept Homer says "when noble Achilles had had his fill of weeping, and the desire of it had gone away from his heart and limbs [...]" *Il*. 24, 513 – 514. Achilles is said to have enjoyed the weeping, *tetarpeto gooio*, and we should also stress that weeping, although related to the memory of Patroclus and of Peleus, is triggered by Priam's words, which in the end were successful in persuading him.

47 Goldhill 2000, 40 – 41; Griffin 1998 stresses the element of pleasure and emotion in tragedy, although disconnected from learning and intellectual engagement.

48 On the subject of emotion see most recently Alexiou/Cairns 2017. On the connection between pleasure and education in Plato and Aristotle see Croally 1994.

5 Signs of Successful Communication: Modern Maps from Havelock to Neuroscience

How can we deepen the understanding of the reciprocity and interconnection embedded in communication as described by Homer by leveraging neuroscience? Can we gain insight into what happens in the mind of an enchanted audience? Is there a neural connection taking place between singer and audience?

Among the many existing trends in brain research Uri Hasson and his laboratory have inaugurated an approach to communication which shows a stringent affinity with our perspective. Starting from the assumption that verbal communication is a "joint activity by which interlocutors share information" they set out to study "the ongoing dynamic interaction" in "natural communication".[49] To do so, the scholars argue against previous experimental paradigms of neuroscientific research whereby "typical experiments isolate humans or animals from their natural environments by placing them in a sealed room where interactions occur solely with a computerized program". By cutting out what communication is about, namely interaction among different people, observation and interpretation of the cognitive processes at stake is severely limited if not impossible.[50] Given the premise that "the development of communication is fundamentally embedded in social interactions across individual brains", Hasson and colleagues advocate no less than a "Copernican revolution" and have operated "a shift from a single-brain to a multi-brain frame of reference", conducting a series of experiments involving several subjects at the same time, recreating, although in the "unnatural" conditions of a laboratory, a sample of real life communication.[51] Since 2010, ground-breaking studies have argued that successful communication relies on "speaker-listener neural coupling" and have put forward a model for understanding verbal communication, termed "brain-to-brain coupling", which represents a new important chapter in neuroscience particularly conversant with humanities.[52]

At the basis of the neural coupling process is an interactive understanding of the neurophysiology of verbal communication, whereby an exchange is observed as a reciprocal, constant tuning in, in particular: "the premise of brain-to-brain coupling is that the perceptual system of one brain can be coupled to the motor

49 Stephens *et al.* 2010, 14425, 14428.
50 Hasson *et al.* 2012, 114.
51 Hasson *et al.* 2012, 117.
52 Stephens *et al.* 2010; Hasson *et al.* 2012; Yeshurun *et al.* 2017; Zadbood *et al.* 2017; Nguyen *et al.* 2019; Nguyen *et al.* 2020.

system of another. This binding mechanism builds on a more rudimentary ability of brains to be coupled to the physical world".[53]

The addresser produces a series of oscillations through the voice by uttering three to eight syllables at a second, that is, at a rhythm of 3–8 Hz.; the sonic, oscillatory message ("input" or "stimulus" in neuroscientific terms) conveyed through the air reaches the ear, and hence the auditory cortex, of the addressee. Rather than a linear scheme, we can infer a reciprocal consonance taking place between the communication's protagonists.

The addressee has an already established system of reception located in the auditory cortex, endowed with ongoing auditory cortical oscillations – like a radio – even in silence. Addresser and addressee, in other words, are already "in sync", tuned in to each other to receive the signal, so that "the 3–8 Hz rhythm of speech couples with the on-going auditory cortical oscillations that have a similar frequency band [...]. The signal-to-noise of this cortical oscillation increases when it is coupled to the auditory-only speech of the signaler". This attunement is greatly enhanced by the visual signal of the mouth's movements during speech, paired by the same rhythmic frequency, so that "audiovisual speech can further enhance the signal-to-noise ratio of the cortical oscillation".[54]

The findings show that "during successful communication, speakers' and listeners' brains exhibit joint, temporally coupled, response patterns", and that "the stronger the neural coupling between interlocutors, the better the understanding".[55] Such neural coupling is in step with the success of communication: the more the neural pattern aligns, the deeper is the reciprocal understanding. Production and comprehension are not mechanically related but reciprocally aligned and interconnected, and they are so at "many different levels during verbal communication, including the phonetic, phonological, lexical, syntactic, and semantic representations".[56] "We argue that in many cases the neural processes in one brain are coupled to the neural processes in another brain via the transmission of a signal through the environment."[57] This continu-

53 Hasson *et al.* 2012, 115.

54 Hasson *et al.* 2012, 117.

55 Hasson *et al.* 2012, 118.

56 Stephen *et al.* 2010, 14428–14429; the neural coupling was observed both at the level of so-called low-level auditory areas and production-based area (such as Broca's area) as well as high-order extralinguistic areas, some of which are "known to be involved in processing social information crucial for successful communication, including among others, the capacity to discern the beliefs, desires, and goals of others" (Stephen *et al.* 2010, 14429).

57 Hasson *et al.* 2012, 114–115.

ous tuning is a "neural coupling", so that the listeners actively anticipate and predict the what the speaker is going to say.

Building on this model, furthermore, the Princeton team conducted a number of studies on storytelling situations, using both autobiographic narration as well as stories viewed on film, with a narrator telling a potentially gripping story to a diversified audience. These studies – to be brief – mapped the neural patterns of the addresser during the encoding of the story, its retrieval (= memory), the verbal delivery on the one hand, and on the other the neural processes of the listeners in decoding and mentally reconstructing the story.[58] The bearing of these results on ancient Greece are in my mind quite important and deserve serious future consideration.

Before returning to the Homeric relevance of brain-to-brain coupling, it is intriguing to read Havelock's argument through this perspective:

> The audience found enjoyment and relaxation as they were themselves partly hypnotized by their response to a series of rhythmic patterns, verbal, vocal, instrumental, and physical, all set in motion together and all consonant in their effect [...]. If he listened silently, only the ears were fully engaged; but the ears transmitted to the nervous system as a whole, and thus limbs, lips, and throat might perform slightly, and the nervous system in general would be sympathetically engaged with what he was hearing. When he in turn repeated what had been sung, the vocal chords and perhaps the limbs were fully activated to go through and perform in identical sequence what they had already sympathetically performed for themselves, as it were, when he had listened.[59]

In his description, Havelock seems to work as a neuroscientist *ante litteram*, in reconstructing the inner, cognitive reactions the performance set in motion in the addressee who resonates cognitively and somatically with the addresser. The scholar highlighted the rhythmic factor that the study of brain-to-brain coupling infers from neuroimaging, and intuitively argues not only for the fundamental reciprocal accord between speaker and listener, but he also sketches an imitative pattern that bears a fundamental analogy with the mirror neuron system (particularly with the mirroring of movements), taking into account furthermore the multimodality specific to epic song, including body movement and music.

Glossing Homeric texts, Havelock speaks of the audience being hypnotized as a result of the above-mentioned factors. In the terminology of brain research, we might describe the same as a brain-to-brain coupling, which is "analogous to a wireless communication system in which two brains are coupled via the trans-

58 Yeshurun *et al*. 2017; Zadbood *et al*. 2017. I can only hint at the main results here.
59 Havelock 1963, 152.

mission of a physical signal (light, sound, pressure or chemical compound) through the shared physical environment".[60]

Hasson and colleagues have shown that this coupling relied on all the actors of communication alike, that in order for the speaker to play a major role in "directly induc[ing] similar brain patterns", reciprocal engagement is needed; in particular, "successful communication requires the active engagement of the listener".[61] Success is by no means automatic or mechanical, it is rather the result of a series of appropriate conditions and shared codes between the agents of communication. The alchemic process of successful communication can easily go astray for a number of reasons, including the narrator's skill, audience members' previous personal experiences as well as a variety of beliefs or expectations, as Penelope's weeping in *Od*. I and Odysseus' in *Od*. VIII show, when the stories strike too close to home.[62]

In Homer we learn that only successful storytellers, with a perfect mastery of the verbal and non-verbal art of storytelling, succeed in locking their listeners' minds in an interdependent, interactive relationship, based on factors such as the willingness to be 'hypnotized', the communal sharing of the experience, as well as common cultural assumptions. When communication "clicks", however, addresser and addressee are like one, they mirror each other. To speak with neuroscientific language "the production/comprehension coupling observed here resembles the action/perception coupling observed within mirror neurons [...]. Similarly, during the course of communication the production-based and comprehension-based processes seem to be tightly coupled to each other."[63]

This coupling is perfectly explained by Plato as a magnetic process in his account of the working of a rhapsodic performance in the 5th-4th century BC, where the philosopher takes pains to explain that the same cognitive and emotional process is mirrored in the relationship between performer and audience.[64] The rhapsode is himself, by virtue of the *enthousiasmos*, transported to the world

60 Hasson *et al*. 2012, 115.

61 Stephens *et al*. 2010, 14428.

62 On differences in perception and interpretation of the same story see, for example, Yeshurun *et al*. 2017. See also the remarks in Budelmann *et al*. 2017, 249: "the traditional approach to tragedy, again for very good reasons, also tends to talk about spectators collectively: the 'audience'. Our methodology revealed, perhaps unsurprisingly, variations in audience somatic and affective response: the 'audience' is Hydra-headed".

63 Stephen *et al*. 2010, 14429.

64 Of course, Platonic description rests on the theory of *enthousiasmos*, we are interested here in the mere description of the mental and emotional process, regardless of their metaphysical interpretations.

of his narration that we would call fictional. His soul, asserts Socrates, is "among the scenes you are describing, whether they be in Ithaca or in Troy or as the poems may chance to place them?", Ion confirms: "when I relate a tale of woe, my eyes are filled with tears; and when it is of fear or awe, my hair stands on end with terror, and my heart leaps." (535c).

Whatever emotion, or neural pattern, we may now add, arises in the narrator, is effected in the listeners too:

> Ion – Yes, very fully aware: for I look down upon them from the platform and see them at such moments crying and turning awestruck eyes upon me and yielding to the amazement of my tale. For I have to pay the closest attention to them; since, if I set them crying, I shall laugh myself because of the money I take, but if they laugh, I myself shall cry because of the money I lose. (Plat., *Ion* 535e-d).

This process of reciprocity as well as the feeling of "being among the scenes" to use Plato's own words is coincidental with the phenomenon of "transportation", the experience "of entering fictional worlds", a term that, as argued by Budelmann *et al*., "gets at 'something', however poorly defined, fundamental to spectatorship and closely related to many other aspects of that experience".[65] Homeric scenes as well as Plato's description of transportation are in my opinion greatly clarified by and cognitively points to the brain-to-brain coupling model. For transportation to take place audience and singer must reciprocally tune in, a condition which brain-to-brain neural coupling maps as a deep and powerful interconnection. This model can be greatly enhanced, I believe, once we look at the overarching factor of engaging communication: *terpsis*.

Neuroscience research can also greatly contribute to our understanding of the relationship between pleasure and learning for our mind, and to move the debate to a different, perhaps firmer ground, that is, beyond simple intuition and common sense, unveiling the possible neural underpinnings that connect knowledge and pleasure. Kang showed that dopamine circuitry is elicited not only by tangible, "primitive" payoffs, but also by cognitive rewards, that is, by the acquisition of knowledge.[66] Together with serotonin and acetylcholine, dopamine is one of the most important neurotransmitters. Its activation is commonly known to be connected to reward and appetitive behaviours, motivational circuitry and goal-directed actions and behaviours: "[D]opamine has a crucial role in motivational control – in learning what things in the world are good and bad, and in choosing actions to gain the good things and avoid the bad

65 Budelmann *et al*. 2017, 245, and nn. 34–35 for bibliography on the subject.
66 Kang 2009.

things".[67] Its high release therefore comes to the fore when we predict that a certain stimulus will bring reward and we assign it a particularly high value accordingly.[68] For our concern, the role of dopamine has been assessed particularly in motivation and learning, and in reinforcing the acquisition of certain information (that is, the formation of synapses) which are assessed as particularly high-value, that is pleasurable, and that we will seek in the future according to the saying "neurons that fire together wire together, as long as they get a burst of dopamine."[69]

In the same year, an unparalleled study equally based on functional magnetic resonance imaging measured the connection between participants' curiosity to learn the answers to trivia questions and the activation of the dopamine system. The results detected a relationship between enhanced activation of the latter and a strong curiosity. In particular, this was shown by heightened activation in the caudate nucleus, a brain structure involved in the reward system and bristling with dopamine neurons.[70]

This shows that the appetite for a forthcoming piece of information (in the study represented by trivia questions, in Homer a new tale) is in itself an anticipated reward. These results have progressively led to a revision of theories of reward-seeking to include information-seeking. The neural activity fired by epistemic curiosity influences memory formation of the stimulus – the piece of information involved.[71]

We can try to connect these separate findings, and conclude that intrinsic motivation – epistemic curiosity – is tightly connected to goal-oriented attention, and that both are geared towards an expected piece of information (the stimulus). The expectation of hearing something new and captivating is itself a reward, which will be followed by the reward of the actual song; both pleasures are therefore sustained by the circuit of dopamine. Getting to know something, in other words, has an intrinsic value for our mind, the neural scanning that detects the release of dopamine confirms what ancient Greeks took for granted since Homer.

67 Bromberg-Martin *et al.* 2010, 815.

68 The dopamine circuit, however, is far more complex and differentiated; recent studies have highlighted its role also for avertive behaviour, see Bromberg-Martin *et al.* 2010, and Wenzel *et. al.* 2015.

69 Bromberg-Martin *et al.* 2010, 816.

70 Bromberg-Martin/Hikosaka 2009.

71 Gruber *et al.* 2014 for the connection between hippocampal activity associated to the anticipation of a reward and memory formation for an upcoming event.

In our neurophysiology, knowledge and learning are pleasure-dependent, much like food and drinking, as Aristotle so well abstracted at the onset of his *Metaphysics* 1.980a πάντες ἄνθρωποι τοῦ εἰδέναι ὀρέγονται φύσει, "all humans by nature yearn for knowledge". To learn, to know, be it a trivia question, an epic song or a scientific theory, is a pleasure deeply embedded in our *physis*, in the structure of our mind.

The underlying reciprocity among all the agents involved in communication – not only between the singer and his audience but among the members of the latter as well – is pointedly expressed by Odysseus' reply to Alcinoos' invitation to reveal his story and take on the role of singer himself:

> ‘Ἀλκίνοε κρεῖον, πάντων ἀριδείκετε λαῶν,
> ἦ τοι μὲν τόδε καλὸν ἀκουέμεν ἐστὶν ἀοιδοῦ
> τοιοῦδ’ οἷος ὅδ’ ἐστί, θεοῖς ἐναλίγκιος αὐδήν.
> οὐ γὰρ ἐγώ γέ τί φημι τέλος χαριέστερον εἶναι
> ἢ ὅτ’ ἐυφροσύνη μὲν ἔχῃ κάτα δῆμον ἅπαντα,
> δαιτυμόνες δ’ ἀνὰ δώματ’ ἀκουάζωνται ἀοιδοῦ
> ἥμενοι ἐξείης, παρὰ δὲ πλήθωσι τράπεζαι
> σίτου καὶ κρειῶν, μέθυ δ’ ἐκ κρητῆρος ἀφύσσων
> οἰνοχόος φορέῃσι καὶ ἐγχείῃ δεπάεσσι·
> τοῦτό τί μοι κάλλιστον ἐνὶ φρεσὶν εἴδεται εἶναι.
>
> King Alkinoos, it is a good thing to hear a bard with such a divine voice as this man has. There is nothing better or more delightful than when merriment prevails over a whole *dêmos*, with the guests sitting orderly to listen, while the table is loaded with bread and meats, and the cup-bearer draws wine and fills his cup for every man. This is indeed as fair a sight as a man can see. (*Od*. 9, 2–11).

This passage stands as a veritable manifesto for singing as the climax of human activity and communitarian joy: neither army nor fleet of ships, the *kalliston*, the best in human life is sharing the pleasure of aedic singing performance, the feeling of interconnectedness created by sitting and eating together, the sensory pleasure of food and drink, and the global intellectual pleasure of learning a new tale.[72] Budelmann *et al.* have recently argued on experimental grounds that being exposed to fictional tragic stories (the experiment was conducted with film-viewing) can trigger production of endorphins, with the effect of reducing pain in the audience, a result which interestingly pairs in a complementary way to the role of pleasure in learning new information (be it stories or other-

72 This ideal communitarian situation lives inside another ideal paradigm, that of Scheria, an island of "utopia". On this see recently, Deriu 2020.

wise), and look at the role that (sad) stories may have in pain tolerance.[73] Even more interestingly for the present concern is the role of endorphins in the sense of being part of a group, which illuminates not only "why we enjoy tragedy, but also why we regularly do so together".[74] The endorphin system has a role not only in pleasurable sensations and pain tolerance but is also "central to social bonding and plays a crucial mediating role in creating cohesive, affective relationships"; the scholars reasonably surmise on this account that "the painful endorphin-releasing experience of tragedy" may elicit an increased sense of bonding among the audience."[75]

In this light the fact that a Homeric scene portrays a community enjoying epic performances together, either as "a whole demos" as in Alcinoos' words, or as a small community, acquires the added value of fostering social bonding. In other words, if the sense of sharing and the belonging mindset is in step with endorphin release, as this study suggests, the cognitive reward of learning/hearing something new makes the experience of epic performance a most powerful social institution where the community shares, constructs and reconstructs its knowledge through a multimodal experience.

So much is conveyed by the Homeric description of a community gathered to enjoy food and drink – the tangible rewards of neuroscientific parlance – as well as to share the pleasure of learning a new story, a new journey of the mind, in search of the ultimate cognitive rewards which sublimate all pleasure. The experience of epic performance, in other words, is a community-maker, one that fosters the sense of interconnection, mutual presence and a sense of belonging. Like the good, effective teacher, the good, divine singer is one who triggers and satisfies the sheer desire for knowing, and creates a memorable, enchanting experience.

6 Concluding Remarks

In this contribution I have set out to create a dialogue between a specific field of cognitive sciences, namely neuroscience, and Homeric studies on the particular issue of successful communication.

Let us now ask how neuroscience changes our perspective. As I have made clear, neuroscience does not provide "the truth about the mind", but it does offer

73 Budelmann *et al.* 2017.

74 Budelmann *et al.* 2017, 240.

75 Budelmann *et al.* 2017, 236, and nn. 19 – 20 for references.

us a distinctively different map of the same territory – in our case verbal communication. In this, brain imaging research has an empirical and experimental vantage point from which we can confirm, flesh out or react to scholars' opinions and interpretations on "Homeric psychology" and the impact of contextual circumstances with much gained by introducing an external, instrumental parameter, in this case fMRI-based results. The descriptive – and implicitly prescriptive – Homeric passages which identify silence, enchantment and pleasure as the three interconnected factors of successful and attuned verbal communication make perfect sense when seen from the perspective of neuroimaging studies, and arrestingly so; but neuroscientific contributions have further illuminated the cognitive articulation underlying those factors of communication highlighted in Homeric poems. In this enriched hermeneutic framework, which includes neuroscientific findings, the Homeric idea of singing, sharing and acquiring knowledge as a deeply emotional experience seems to possess a firm ground in neurophysiology.

Moreover, all factors vividly portrayed in Homeric banquet scenes, where relevant knowledge is shared and to a degree constructed show that the two-way process we call teaching and learning is based on a constant accord between the parties, and entails enjoyment. "Learning" – listening to an epic performance – is depicted as an engaging activity, profoundly connected to what we humans consider as most dear and valuable, just like food and social interconnection, that neuroscience terms the "dopamine circuit".

Anthropological and comparative approaches are in many ways a distancing device, as they remove Homer from our armchair classicist projections, to compare them with cultures distant in time or place, be they West African *griots* or Balkan *guslari*. This is a necessary step to see Homer in its own terms rather than ours. According to Habinek, neuroscience does something similar to anthropology, it "defamiliarizes the ancient material, opening up new horizons of understanding"; glossing this assertion Meineck adds that the epistemological advantage is "to distance ourselves slightly from our own cultural biases when we examine aspects of antiquity."[76] I would rather say that neuroscientific approach acts in a different direction as well. It may stand as a zooming device whereby we may relate to ancient Greece, and Homeric texts for the present concern, in a new, more lively fashion. If on the one hand, Homeric world is perceived as distant from our modern experience, on the other, by joining neuroscience to our analysis, the Homeric way makes perfect sense, and becomes wonderfully

76 Habineck 2011, Meineck 2017, 3 – 4.

close from the human point of view. Within the limits of this contribution, two directions stand out.

In the first place, the Homeric model of communication brings to the fore the idea that learning, sharing knowledge and teaching are virtuously connected with enjoyment, an idea that brain research has increasingly confirmed, but that common opinion and school-practice often disconfirm: common sense (which of course does not coincide with the scholarly viewpoint) would associate learning processes with hard work or strain rather than with enjoyment and pleasure. From the viewpoint of mind research, the Homeric and ancient Greek way may be viewed as a sort of inspiring best practice for sharing information and at the same time for creating a mindset of belonging in the learners' community.

Secondly, to perceive Homeric and ancient Greek texts and culture as simultaneously culturally estranged and humanly familiar allows us to engage in a lively new dialogue, a great challenge especially in a time when communication is changing fast. While our discourse is by and large the product of "analogic" alphabetic writing, that is, based on writing and reading using a material, analogic support (stone, paper, etc.), we are living in a time when digital media are surpassing the ancient technology of literacy, producing, among other things, a new visual orality and new ways of sharing knowledge. To rethink orality and literacy with the help of neuroscience also means imagining a transferable set of questions for a new, thought-provoking perspective on digital communication. In this, I believe neuroscience can act as zooming device as well as a distancing one, a way of creating a new dialogue with ancient texts which become "differently closer" as well as a dialogue – or *metalogue* in Bateson's terms – between human and hard sciences.[77]

This, I surmise, is no little gain, as we can take these practices as a challenge to rethink ourselves in a time of swift change and by doing so, we may provide a cross-cutting approach to the theme of communication, which not only will change and update current paradigms, but may prove most suggesting and insightful for contemporary debate.

77 See Bateson 1972, 2: "a *metalogue* is a conversation about some problematic subject. This conversation should be such that not only do the participants discuss the problem but the structure of the conversation as a whole is also relevant to the same subject".

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