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# The vowel /a/ as the main portal to humanity's language and culture faculties

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The vowel /a/ is regarded here as the initial sound, based on earlier vowel-like vocalization in humans, especially the neonate cry. This particular type of vocalization marks the true beginning of human language in the ontological perspective. Its presence is absolutely fundamental for the generation and maintenance of oxygen-based language and culture complex. All of human life is conducted in the human auditive world of organization based on the air (the aerial condition).

**Keywords**: oxygen-based language and culture complex (OBLCC), neonatal cry, auditive world of organization, first language acquisition, human hearing range

*Clamo, ergo sum.*
*I cry. therefore I am.*
*Krzyczę, więc jestem!*

## 1. Introduction

Humans are aerial creatures and may therefore easily be referred to as participants in and builders of the 'oxygen-based language and culture' complex (hence OBLCC). Upon leaving the aquatic condition of the uterus, we are throwing ourselves entirely on the mercy of the air, as do all aerial mammals. Crying is the first and very clear sign of aerial (i.e. oxygen--based) life that is observed shortly after the baby leaves the uterus. We breathe the air and communicate in the air throughout our lifetimes. And the founding moment of our entrance to the aerial condition is the moment of our birth, or, more precisely, the way in which our organisms signal the dominant presence of the air upon leaving the uterus with what has been referred to in pertinent literature as the 'neonatal cry'. A view is proposed here that it is the neonatal/infant cry, as shown in the picture below, which is the foundation of language and culture in the underlying oxygen framework, and it is the focus of our attention.

Figure 1. The photo shows a crying (yelling) infant, with the mouth open wide and the body of the tongue visibly raised and moved backward as it enters the final destination of the oxygen-based language-culture complex (OBLCC) (source: author's own files).

Upon leaving the aquatic condition of the uterus, the neonate enters the extra-uterine (external) world with the aerial activation of the absolutely rudimentary respiratory, laryngeal, lingual and auditory equipment. And s/he will ultimately need its overall fitness both for the production of speech and in order to begin his/her career as a linguist, oral communicator and as a participant (and builder) of the ultimate oxygen-based cultural design, of the OBLCC, which may also be generally referred to as the human 'auditive world of organization' (see Corbett 2003).

The rudimentary respiratory-laryngeal-auditory machinery of the genus *Homo sapiens* has been assumed to operate within the acoustic field of ca. 20-30 Hz and 20 kHz. And it is within these values that the rich human sound repertory is universally constructed and contained (see e.g. Ladefoged & Maddieson 1990: Miller 1951; Ladefoged & Maddieson 1996; Maddieson & Disner 1984; Heffner 2004; Maddieson 2009; Gelfand 2010, with the latter handbook serving as an authoritative and invaluable source of information on human hearing).

As has been stated above, the baby begins the journey towards the fully controlled human 'auditive world of organization' and towards culture through the human region of the acoustic field with the neonatal cry, or the high intensity (vigorous) vocalization resembling the vowel /a/. In further motor-articulatory-auditory refinements and in the course of first language acquisition, the primary (endogenous) vocalization is finally advanced to the adult shape of the culture-specific sound systems easily duplicated across ethnicities and across diversified linguistic communities. The area of frequencies available to humans, as compared to that of animals, is illustrated in the following diagram (Fig. 2).

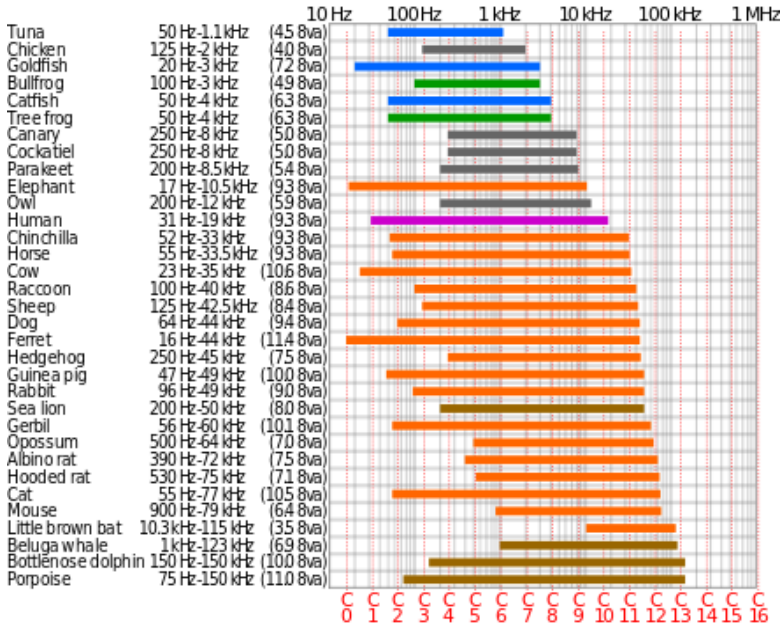


Figure 2. The human hearing range (indicated in velvet colour) is shown against a number of animal ranges. It is within this range that both language and culture are contained in the OBLCC) (source: http://commons.wikimedia.org/wiki/File:Animal_hearing_frequency_range.svg)

A more graphic presentation of the human hearing range against some selected animal ranges is shown below (Fig. 3)

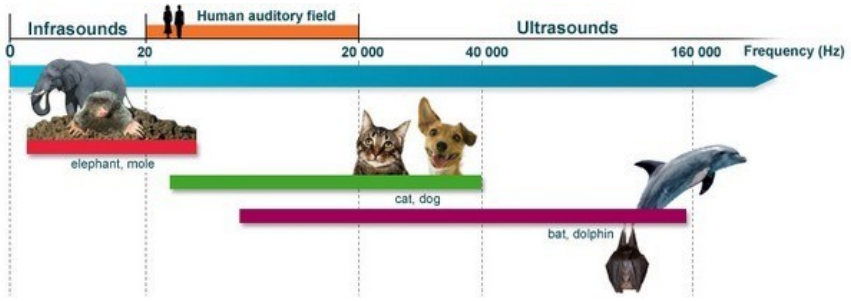


Figure 3. The human auditory field is shown against both the infrasound frequencies and ultrasound frequencies (source: www.cochlea.org/en/hear/human-auditory-range)

The realm of all human sounds is contained within the acoustic field whose ranges have been shown below (Fig. 4).

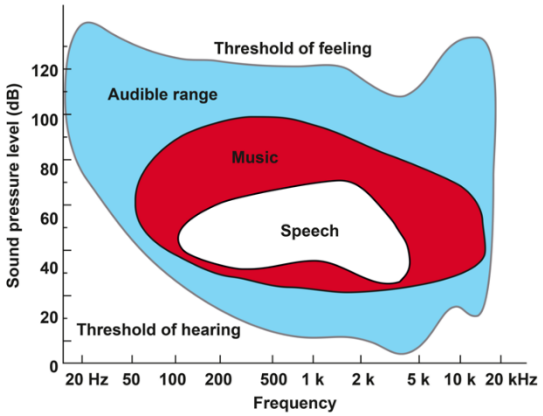


Figure 4. The human auditory range, with hearing and feeling (pain) thresholds as well as the music and speech areas (source: Ramirez & Herbig 2016)

## 2. Advantages of the neonate/infant cry

At this point, a major question may be formulated: What advantages does an infant generally obtain from the infant cry? To answer this question more or less satisfactorily, one must postulate a number of levels on which the infant cry appears to be a beneficial bio-socio-cultural endeavour. These levels include:

1. The vowel formant space expansion level: on the level of human vocal production, the production of the most quantal vowel /a/ (for a discussion of the nature of quantal vowels, see e.g. Stevens 1972; Stevens 1989; Stevens 1998) opens up, as it were, the acoustic, articulatory, and perceptual spaces which are filled up by various autonomous vowel segments, varying in number in different languages (see e.g. Puppel & Jahr 1997; Vorperian & Kent 2007) in the process of first language acquisition. This process of expansion of the afore mentioned spaces is intangible in nature and is accompanied by the production of tangible artefacts in the cultural dimension. The two dimensions, intangible in the form of human language and tangible in the form of various man-made artefacts, constitute the domain of culture.

2. The physiological (somatic) level: a number of fundamental activities are accomplished by the child on this level, such as: breathing (pulmonary) activity, cardiac activity, vocal cord activity (phonation), oro-facial activity, lingual activity, complex nervous system activity. As a result, an overall synchrony of these activities is eventually accomplished thus paving the way for the construction of full language in the primary oral order of communication. Moreover, the physiological level of the neonate/infant cry serves to signal such somatic phenomena as: hunger, thirst, fatigue, injury, pain, and indigestion. All are fundamental for what may be called the 'human technology of life'.

3. The social-cultural level: the first cry of the newborn baby indicates that the baby, separated from the maternal organism, is about to enter the social-cultural dimension of her oxygen-based life. The initial dimensions of social life, provided by the primary caregivers,

are the following: care, support and protection. Therefore, the social dimension of the first (neonate) cry *prima facie* involves the phenomenon of soliciting the attention (responsiveness) of those individuals around the baby, especially of the mother, as a result of the occurrence of the so-called separation distress, as well as it signals the need for physical contact (or 'bonding'; see e.g. Sullivan et al. 2011 and the literature contained therein) when the infant is separated from her mother, this time in the entirely new conditions of the extra-uterine and aerial life of the newly born human being. Let me emphasize at this point that physical contact – which the baby finds so fundamental after leaving the uterus – will for ever remain one of the main factors in the construction of and participation in the OBLCC, as indicated in the introductory section of the paper. It is so important that phenomena such as: skin hunger, touch starvation, and hug deprivation may become the sources of serious mental disturbances in later adult life.

4. The semiotic level: with the neonate cry, the newborn baby is finally tied up with and signals a strong attachment to the air (i.e. the oxygen as its major component) as the solid foundation of the baby's physiological-semiotic grounding on the terrestrial carrier. Again, the child's strong and physiologically inevitable attachment to the air constitutes a founding pillar of OBLCC.

5. The construction (structural-organizational) level: with the neonate cry, the newly born baby enters the final phase of the OBLCC dimension, the phase of the human technology of life. With the production of the /a/-semblant sound (which may also be termed a 'protophone', see Kimbrough Oller et al. 2019) serving as the foundation, a vocalic nucleus, for the slicing (i.e. segmentation) of the available acoustic field and subsequent construction of any vocalic system and the accompanying consonantal system which are culture-controlled (on the child's phonetic development, see e.g. Kilminster & Laird 1978 and Puppel 2001), the child initiates the vital process of constructing a working language via constructing a viable phonological system based on such psycho-social mechanisms as contrast and gradation (see e.g. Foley 1977; Ohala 1983; Kirchner 1997; Flemming 2001).

## 3. Conclusion

With this system at hand, and being fully immersed in the human auditive world of organization, the child becomes thoroughly involved in managing the surrounding external reality with rich semanticization, lexicalization, syntaxicization and interactive interpersonal verbal communication. In this way, s/he is beginning to participate in both the intangible (i.e. soft) and tangible (i.e. hard) dimensions of culture. Together, following the law of the Inevitability of Design (see Puppel 2022), the two dimensions, supported by language capacities, in particular the acquired sound pattern as the basis of lexical repertoires developed and maintained in the particular natural languages in the unique realm of human verbal communication, co-determine the human condition (*conditio humana*), or the uniquely human technology of life. All this is owed to the onotgenetically initial generation of the vowel /a/ which may thus be regarded as a 'launching pad' for the entire oxygen-based language-culture complex and a specific 'portal' to the entirety of culture.

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