

Nonverbal Communication

Human Communication Lecture 26

Nonverbal Communication

NVC can be communicated through gestures and touch (Haptic communication), by body language or posture, by facial expression and eye contact.

Speech contains nonverbal elements known as paralanguage, including quality, emotion and speaking style, as well as prosodic features such as rhythm, intonation and stress.

Types of Non Verbal Communication (NVC)

Proxemics: physical space in communication

Movement and body position

- * Kinesics

- * Posture

- * Gesture

- * Haptics: touching in communication

Facial Expression

Eye contact

Paralanguage: nonverbal cues of the voice

Proxemics

Study of how people use and perceive the physical space around them - space between sender and receiver of a message influences how message is interpreted.

<http://www.youtube.com/watch?v=AeNGSZK01Hs&feature=related>

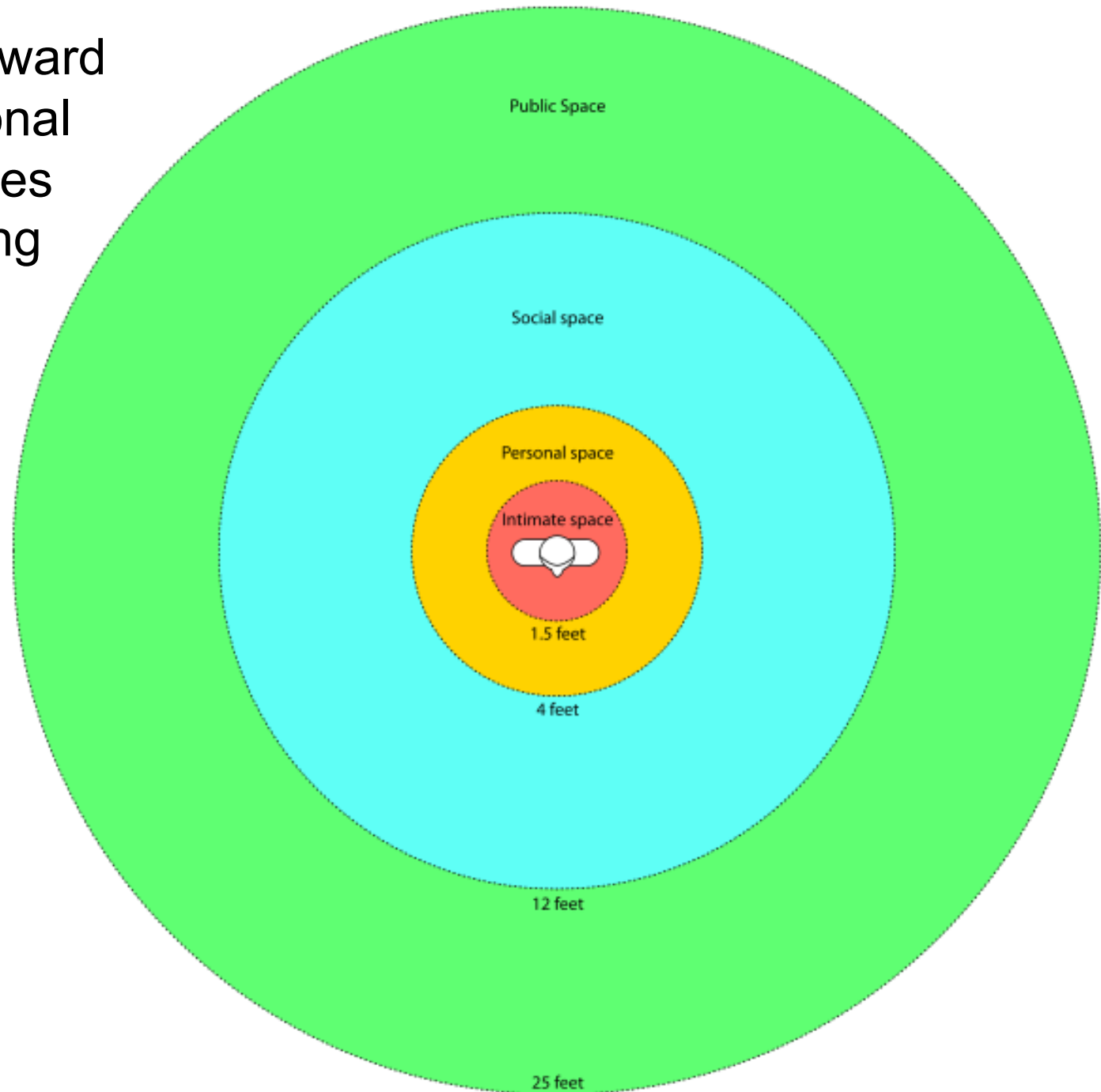
Comfortable personal distances also depend on the culture, social situation, gender, and individual preference.

Hall notes that different cultures maintain different standards of personal space e.g.

- Latin cultures: relative distances smaller, and people tend to be more comfortable standing close to each other;
- Nordic cultures the opposite is true.

Space in NVC may be divided into four main categories: intimate, social, personal, and public space.

Diagram of Edward T. Hall's personal reaction bubbles (1966), showing radius in feet



Mar-14-11

Body Language

Body language is a form of non-verbal communication, consisting of body pose, gestures, and eye movements. Humans send and interpret such signals subconsciously.

Study of body movement and expression is kinesics.

Body language may provide cues as to the attitude or state of mind of a person.

For example, it may indicate aggression, attentiveness, boredom, relaxed state, pleasure, amusement, besides many other cues.

Gestures: getting it wrong:

<http://www.youtube.com/watch?v=xIUptjr3Xfo>

A gesture is a non-vocal bodily movement intended to express meaning.

They may be articulated with the hands, arms or body, and also include movements of the head, face and eyes, such as winking, nodding, or rolling ones' eyes.

Movement and body position

Posture: used to determine

- degree of attention or involvement,
- the difference in status between communicators,
- the level of fondness a person has for the other communicator.

Studies investigating the impact of posture on interpersonal relationships: mirror-image congruent postures, (one person's left side is parallel to the other's right side), leads to favorable perception of communicators and positive speech; forward lean or a decrease in a backwards lean also signify positive sentiment during communication.

Posture is understood through such indicators as direction of lean, body orientation, arm position, and body openness.

Haptic communication

Means by which people and other animals communicate via touching.

Touch is an extremely important sense for humans; as well as providing information about surfaces and textures it is a component of nonverbal communication in interpersonal relationships, and vital in conveying physical intimacy.

Socially acceptable levels of touching varies from one culture to another.

In the Thai culture, touching someone's head may be thought rude.

Remland and Jones (1995) studied groups of people communicating and found that in England (8%), France (5%) and the Netherlands (4%) touching was rare compared to Italy (14%) and Greece (12.5%).

Paralanguage: nonverbal cues of the voice

Various acoustic properties of speech such as tone, pitch and accent, collectively known as prosody, can all give off nonverbal cues.

Paralanguage may *change the meaning of words*.

Prosody may reflect various features of the speaker or the utterance:

- the emotional state of a speaker;
- whether an utterance is a statement, a question, or a command;
- whether the speaker is being ironic or sarcastic;
- emphasis, contrast, and focus;

other elements of language that may not be encoded by grammar or choice of vocabulary.

Facial Expressions

Charles Darwin's book *The Expression of the Emotions in Man and Animals* (1872) argues that all mammals show emotion reliably in their faces.

Studies now range across a number of fields, including linguistics, semiotics and social psychology.

Paul Ekman's influential 1960s studies of facial expression determined that expressions of anger, disgust, fear, joy, sadness and surprise are universal (not, as had been thought, culturally determined).

Ekman developed the Facial Action Coding System (FACS) to taxonomize every conceivable human facial expression.
(Now commercialised — see <http://www.paulekman.com/>)

Ekman conducted and published research on a wide variety of topics in the general area of non-verbal behavior. His work on lying, for example, was not limited to the face, but also to observation of the rest of the body.

Eye Contact

Eye contact and avoidance

<http://www.youtube.com/watch?v=nwbUy3MHZGg>

Eye contact needs to be neither too little nor too much.

Amount of eye contact is related to various things, such as personality type.

Natural Gesture Synthesis:

Gesture Modeling and Animation Based on a Probabilistic Recreation of Speaker Style

DFKI and MPI Informatik generated and animated style-consistent manual gestures, modelled from TV material of human speakers using hand-coded annotations, semantic tags and Markov models.

http://embots.dfki.de/projects/gesture_synthesis.html

Also style comparison: Shows two variations of synthesized gestures on the same text.

ERIC - The Embodied Commentator

ERIC is an embodied agent who is able to commentate dynamic events, e.g. a horse race or a tank combat game.

ERIC commentary excerpt (.mpg, 7MB): Shows excerpts from ERIC commentary, together with the emotion cube reflecting ERIC's current mood blended in. Video quality is somewhat low.

<http://embots.dfki.de/projects/eric.html>

Training a robot...

The MIT set of movies is a useful set as a reference/reading list <http://www.ai.mit.edu/projects/sociable/videos.html>

Talking about MIT robots:

<http://www.ai.mit.edu/projects/sociable/movies/readable-narrative.mov>

Training robot by tone of voice - nice example

<http://www.ai.mit.edu/projects/sociable/movies/affective-intent-narrative.mov>

Interacting with child

<http://www.ai.mit.edu/projects/sociable/movies/kismet-and-adrian.mov>

Movie of robot alone

<http://www.ai.mit.edu/projects/sociable/movies/desperately-seeking-kismet.mov>

Expression examples

<http://www.ai.mit.edu/projects/sociable/movies/expression-examples.mov>

Using agents with NVC to teach...

Aileo (<http://www.alelo.com/aied2009/>) develop conversational AI technologies that enable learners to engage in spoken conversations in foreign languages.

- use immersive 3-D videogame that simulates real-life social communications with “intelligent virtual humans” that recognize speech, gestures and social behavior.
- If speak and behave correctly, the virtual humans become trustful and cooperative, and provide information that you need to advance.
- otherwise, the virtual humans are uncooperative and prevent you from “winning” the game.

Interaction of verbal and nonverbal communication

When communicating, nonverbal messages can interact with verbal messages in six ways: repeating, conflicting, complementing, substituting, regulating and accenting/moderating.

Repeating: consists of using gestures to strengthen a verbal message, such as pointing to the object of discussion.

Conflicting: Verbal and nonverbal messages within the same interaction can sometimes send opposing or conflicting messages. A person verbally expressing a statement of truth while simultaneously fidgeting or avoiding eye contact may convey a mixed message to the receiver in the interaction.

Conflicting messages may occur for a variety of reasons often stemming from feelings of uncertainty, ambivalence, or frustration.

Interaction, cont.

Complementing: Nonverbal cues can be used to elaborate on verbal messages to reinforce the information sent when trying to achieve communicative goals; messages have been shown to be remembered better when nonverbal signals affirm the verbal exchange.

Substituting: Nonverbal behavior is sometimes used as the sole channel for communication of a message. People learn to identify facial expressions, body movements, and body positioning as corresponding with specific feelings and intentions.

Regulating: Nonverbal behavior also regulates our conversations. For example, touching someone's arm can signal that you want to talk next or interrupt.

Accenting/Moderating: NV signals used to alter interpretation of verbal messages. Touch, voice pitch, and gestures used to accent or amplify, or tone down, the message that is sent.

Space in NVC

- * Intimate distance for embracing, touching or whispering
 - o Close phase – less than 6 inches (15 cm)
 - o Far phase – 6 to 18 inches (15 to 46 cm)
- * Personal distance for interactions among good friends or family members
 - o Close phase – 1.5 to 2.5 feet (46 to 76 cm)
 - o Far phase – 2.5 to 4 feet (76 to 120 cm)
- * Social distance for interactions among acquaintances
 - o Close phase – 4 to 7 feet (1.2 to 2.1 m)
 - o Far phase – 7 to 12 feet (2.1 to 3.7 m)
- * Public distance used for public speaking
 - o Close phase – 12 to 25 feet (3.7 to 7.6 m)
 - o Far phase – 25 feet (7.6 m) or more

References

Selected publications:

- Neff, M., Kipp, M., Albrecht, I. and Seidel, H.-P. (2008) Gesture Modeling and Animation Based on a Probabilistic Recreation of Speaker Style. In: ACM Transactions on Graphics 27 (1), ACM Press, pp. 1-24.
- Kipp, M., Neff, M., Kipp, K.H. und Albrecht, I. (2007) Toward Natural Gesture Synthesis: Evaluating gesture units in a data-driven approach. In: Proceedings of the 7th International Conference on Intelligent Virtual Agents, LNAI 4722, Springer, pp.15-28. Overview video Shows animation from annotation and gesture synthesis on novel text input.
- Strauss, M., Kipp, M. (2008) ERIC: A Generic Rule-based Framework for an Affective Embodied Commentary Agent. In: Proceedings of the 7th International Conference on Autonomous Agents and Multiagent Systems (AAMAS-07).