

Sharing Meaning with Affection
**PART 2 -- THE ELEGANCE OF
 PROTO-CONVERSATION**
Mary Catherine Bateson (1979)



An infant 7 to 14 weeks old with the mother.
 "... the mother and infant were collaborating in a pattern of more or less alternating, non-overlapping vocalization, the mother speaking brief sentences and the infant responding with coos and murmurs, together producing a brief joint performance similar to conversation, which I called 'proto-conversation'."

These interactions were characterized by a sort of **delighted, ritualized courtesy and more or less sustained attention and mutual gaze.**

Bateson concluded,
 "**The development of the capacity for participation in complex sequenced behavior** must lay the groundwork for participation in **games** and for the development of **playful patterns of imitations**, and so the study of such performances can shed light on a variety of types of learning, including **language acquisition.**"



Leanne
 6 weeks,
 Edinburgh
 1979



Expressing interests and feelings to her sympathetic mother, in symphony



The Prosser Family in Edinburgh, 1979

We tell one another our intentions, interests and feelings from birth, by **moving in sympathy** -- creating stories of life with people we love.

Laura, at 6 weeks, starts to chat with her Mother, **Kay**, at Edinburgh University. She pays attention.



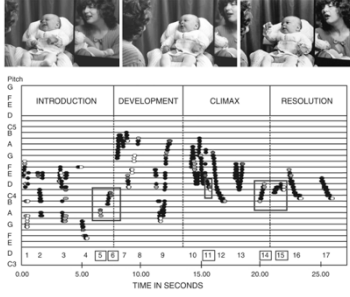
The body shows intimate intentions, and their voices make a symphony together



Laura's conversation with her mother was analysed by musician and acoustics expert **Stephen Malloch**. He measured the sound of their vocalizations in *spectrographs* and *pitch plots*. With film we correlated these vocal expressions of emotion with gestures of head, face and hands.



Laura was a gifted partner with her mother.



A wave of pitch describes the melody of their story and shows how they helped each other through the drama of relating in life time.

INTRODUCTION	DEVELOPMENT	CLIMAX	RESOLUTION
1 Come on	7 Oh yes!	10 Tell me some more than	15 Oh oh
2 Again	8 Is that right?	11 INFANT	With INFANT
3 Come on then	9 Well tell me some more than	12 Ooohh	16 Alingo
4 That's clever		13 Come on	17 Goo
5 INFANT		14 Oh oh oh oh	
6 INFANT		With INFANT	

CHARTING THE EMOTIONS OF THEIR VOICES WITH MUSICAL ACOUSTICS

Protoconversation -- a Story in Sound.

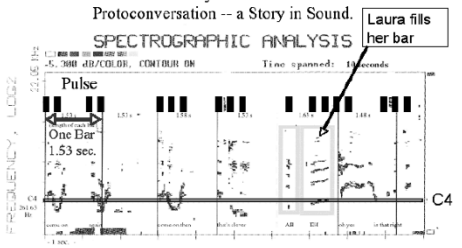
SPECTROGRAPHIC ANALYSIS

Time spanned: 10 seconds

1. Laura

Laura fills her bar

One Bar 1.53 sec.



First 10 seconds of a short 'story': 'Introduction'.

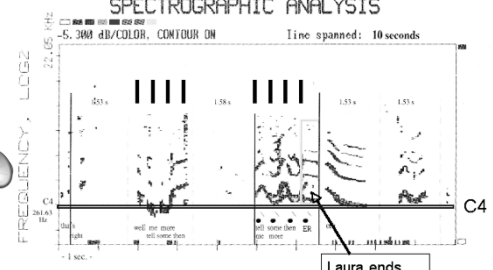
SPECTROGRAPHIC ANALYSIS

Time spanned: 10 seconds

2. Laura

Laura ends Mother's bar

10 to 20 seconds, 'Development'



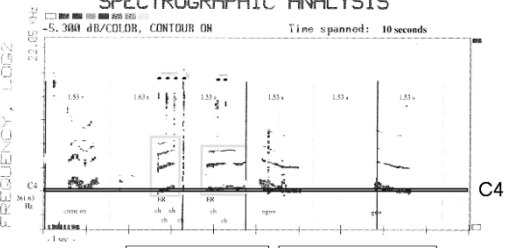
SPECTROGRAPHIC ANALYSIS

Time spanned: 10 seconds

Laura & Mother. Duet in 2 Bars

Mother Celebrates the Close.

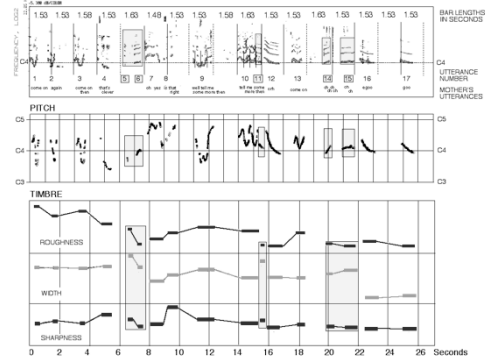
20 to 30 seconds, from 'Climax. to 'Resolution'.

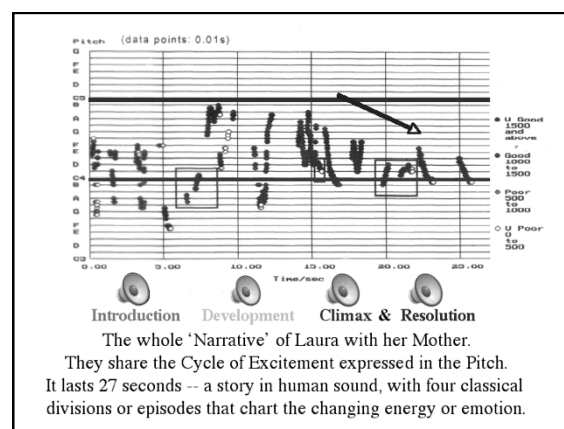
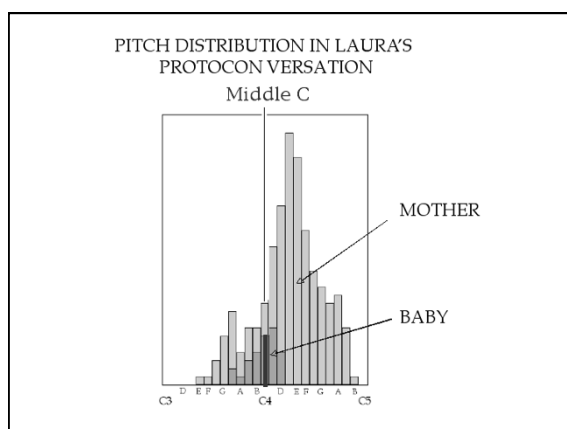


SPECTROGRAPHIC ANALYSIS

Time spanned: 26 seconds

Measures of vocal quality in a story of shared feelings





THE THEORY OF COMMUNICATIVE MUSICALITY Malloch, 1999

Music of the mother's voice engages an **Intrinsic Motive Pulse (IMP)** in the brain.
Essential measures of *Musicality*:

- (1) **PULSE**: A rhythmic time sense;
- (2) **QUALITY**: Sensitivity for variation in intensity, pitch and timbre or tone of voices or musical instruments;
- (3) **NARRATIVE**: Perception of the emotional development of the melodic line, with anticipation of harmonies, phrases and emotional forms in voice or music.

NARRATIVE ACTIONS WITH PERSUASIVE FORCE ABOUT INTENTIONS, EXPERIENCES AND FEELINGS

"Pulse and Quality are combined in the forms of emotional narrative, which allow two persons to **share a sense of purpose in passing time.**" Malloch, 1999.

Communicative Musicality: Exploring the Basis of Human Companionship

Stephen Malloch and Colwyn Trevarthen

Oxford University Press
2009, Paperback 2010



MUSICALITY IS INNATE - IT CONDUCTS OUR MENTAL DRAMA & SHARES IT

Infants are much cleverer than we had thought at discriminating *musical rhythms and tones of human sounds*. They hear the musicality of mother's talk and learn simple melodies *before birth*.

A two-month-old can be a skilled performer in an *improvised vocal duet or protoconversation, a shared story over tens of seconds*.

And movement time synchronizes the senses

A WONDERFUL CASE OF TRANSMODAL MEANING

A Swedish Baby-Song

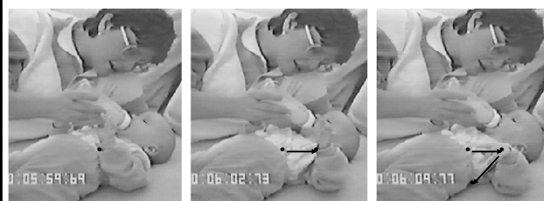
Mors lilla Olle



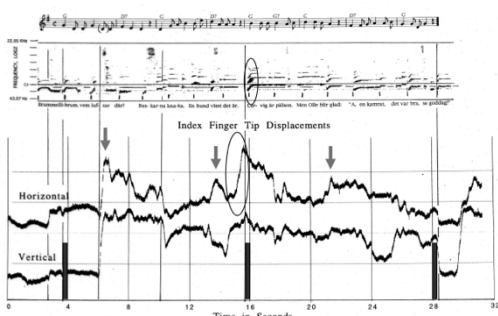
Text och musik: Alice Tegnér
 Mors lilla Olle i skogen gick
 Låparna små ut-av bår ä-ro-
 "Ba-ra jag slapp att så en-sam he-
 Berran-lösen, var bärar det?
 Bärarna kända, de bärar var det de,
 Låparna på bår, var de bärarna gick,
 Å, en kunnat, det var bär, en gullig,
 Skypor så kända med linder verk,
 Skilde från låparna, de, det var bärarna gick,
 Skilde som bärarna var det var det,
 Ållit de, jag var, ut de tydligt var bär,
 Mors lilla ut en bär, gör ett ett ett,
 Skypor sprang bär, ut de bärarna gick,
 Å, var det bärarna de bärarna var det?
 Bärarna bär, bär bärarna kunnat gick?

Mother's little Olle meets a bear and feeds him blueberries

A Swedish Mother Sings to Her Totally Blind Baby



This five-month old blind baby girl conducts her mother's songs with her left hand. At moments her hand moves 1/3 second before the melody of her mother's voice, making graceful gestures, re-telling a story she knows well.

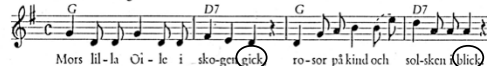


The baby's finger, dancing to the music, sometimes moves about 0.3 seconds before the mother's voice, or she synchronizes. She knows the 'performance'.

The Rhythms and Tones of a Story

Mors lilla Olle

Text och musik: Alice Tegnér



Brummelibrum, vem lufsar (lär)?
 Buskarna knaka. En hund visst det (är)
 Lurvig är påsen. Mea Olle blir (glad)
 »Å, en kamrat, det var bra, se goddag!»

Klappar så björnen med händer (små)
 räcker fram korgen: »Se där, smaka (på)»
 Nalle han slukar mest allt vad dä (är)
 »Hör du, jag tror, att du tycker om (bär)»



Mor fick nu se dem, gav till ett (skri)
 Björnen sprang bort, nu är leken fö (bi)
 »Å, varför skrämde du undan min (vän)
 Mor lilla, bed honom komma igen!»

DISCOVERING THE FETAL PERSON


FROM THE START AN INSPIRED MOVER,
 ANTICIPATING EXPERIENCE
 WITH GRACE AND CARE

SEEKING COMPANY, WITH PRIDE
 EXPECTING TO BE GREETED WITH
 JOY AND LOVE


THE BEGINNING OF MOTOR INTELLIGENCE
 A mid-gestation foetus puts thumb in mouth, or makes gestures of conversation *with purposeful grace.*

Eyes open soon – but there will be little to see. Hearing listens for the mother’s voice. Soon will come a smile, or a pout of disgust, *emotions*

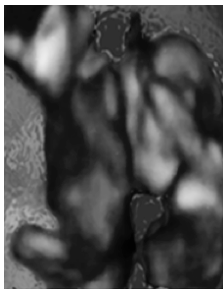



Stephanie Zoia
 The cerebral cortex is silent, but beneath is a human spirit, expecting to share stories in movement.

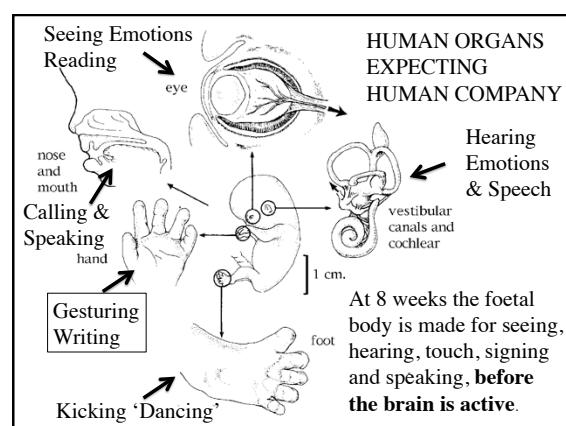


Dr Nadja Reissland from Durham University who has researched scans of unborn babies whose mothers smoke, and found expressions of distress. She has also observed that the foetus of a mother who is depressed shows self-touching comfort gestures by the left hand.

OTHER-AWARENESS
 A Foetus Touches a Twin
 With Careful Kindness

Umberto Castiello
 with
 Becchio C, Zoia S, Nelini C, Sartori L, Blason L, et al. (2010). Wired to be social: The ontogeny of human interaction. *PLoS ONE*, 5(10): e13199.
 doi:10.1371/journal.pone.0013199



SYNRHYTHMIC REGULATION: After birth mother and infant communicate **psychologically**, regulating sympathy by signs of emotion, **musically**.

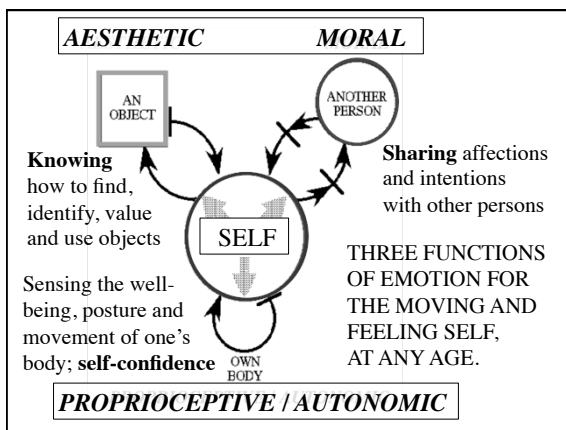
Emotions Exchanged at Synrhythmic Frontier

Passing expressions of face, voice and hands back and forth, rhythmically, imagining each other, participating in feelings

The Baby is Ready for Stories of Conversation

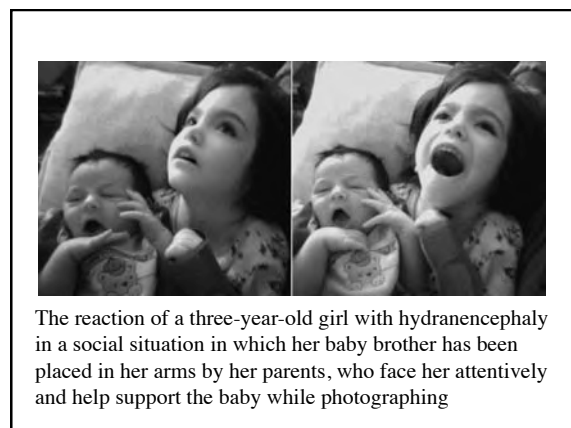
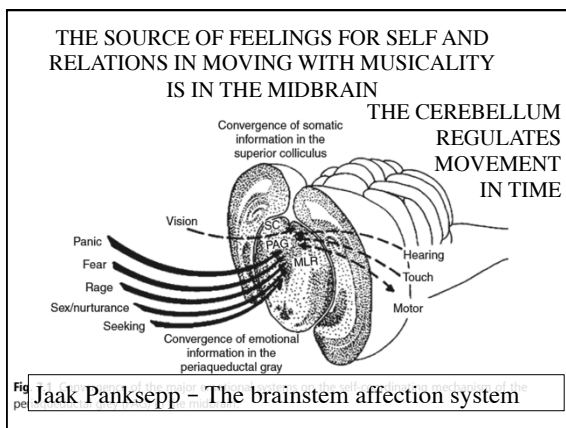
"A smiling face is, to everybody that sees it, a cheerful object; as a sorrowful countenance, on the other hand is a melancholy one."

The Theory of Moral Sentiments (1759) by Adam Smith (who was much more than an economist).




"Most neuroscientists subscribe to ruthless reductionism whereby mental qualities are discarded in preference for neuronal functions. Such ideas often lead to envisioning other animals, and all too often other humans, as unfeeling zombies. ... A cortical view of consciousness has become so prevalent that ... research related to the subcortical foundations of consciousness almost disappeared from reasoned discourse during the last few decades." (Panksepp, 2007)


Jaak Panksepp



Antonio Damasio (2011).
 Neural basis of emotions.
Scholarpedia, 6(3):1804
 “The range of emotions is wide but finite. In humans it includes the programs of *fear, disgust, sadness, joy, anger, and surprise*, as well as a group of simpler programs such as *enthusiasm or discouragement*, known as background emotions. It also includes a group of very complex programs, usually known as social emotions, such as *embarrassment, shame, guilt, contempt, compassion, and admiration*.”



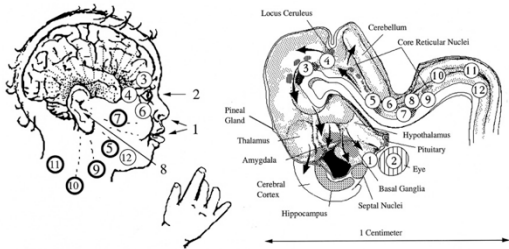
Stephen Porges
 “We present a biobehavioural model that explains the neurobiological mechanisms through which measures of vagal regulation of the heart are related to infant self-regulatory and social engagement skills.
 ... as cortical regulation of the brainstem improves during the first year of life, reciprocal social behaviour displaces feeding as the primary regulator of physiological state.”



Porges, S. W. and Furman, S. A. (2011). The early development of the autonomic nervous system provides a neural platform for social behaviour: A polyvagal perspective. *Infant and Child Development*, 20, page 106.

Music is intertwined with emotions, affect regulation, and interpersonal social behavior and other psychological processes that describe basic human experiences ... **These psychological processes shape our sense of self, contribute to our abilities to form relationships, and determine whether we feel safe in various contexts or with specific people.** ... they represent a complex interplay between our psychological experience and our physiology.

Porges, S.W. (2010). Music therapy & trauma: insights from the Polyvagal Theory. In Kristen Stewart (Ed.), *Symposium on Music Therapy & Trauma: Bridging Theory and Clinical Practice*. New York: Satchnote Press.






Parts of a Baby's Head and Face Are Innervated by the Brain Showing the Cranial Nerves, for SELF-REGULATION & COMMUNICATION

7-Week Human Embryo Brain Showing the Cranial Nerve Nuclei, formed 7 months before birth, before shaping of the forebrain

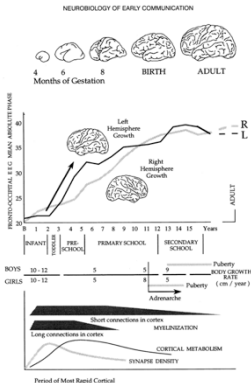
Allan Schore

My work in developmental affective neuroscience indicates attachment transactions shape the connectivity of specifically the early developing right brain, which is dominant for control of *vital functions supporting survival, and for the processing of emotions*

1994 2012

NEUROBIOLOGY OF EARLY COMMUNICATION

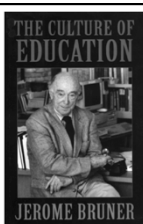


Through gestation and postnatal growth, the left and right hemispheres of the human brain show different periods of growth related to **the balance between self-regulation of well-being in the world, and adventures to know and use its resources, including those for relating to persons, and for learning cultural skills and language.**

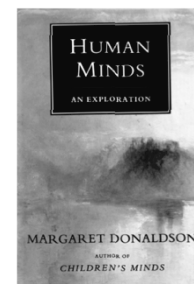
It is surely the case that **schooling is only one small part of how a culture inducts the young into its canonical ways.** Indeed, schooling may even be at odds with a culture's other ways of inducting the young into the requirements of communal living....

education is not just about conventional school matters like curriculum or standards or testing. ... **How one conceives of education ... is a function of how one conceives of culture and its aims, professed and otherwise.**

(Jerome S. Bruner *The Culture of Education*, 1996: ix-x)



By Donald Sinclair Swan
Date painted: 1989
National Galleries of Scotland

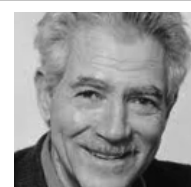
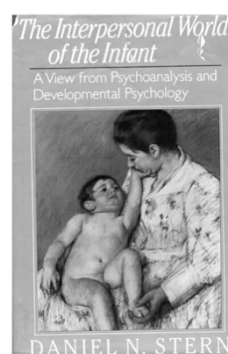


Professor Margaret Donaldson-Salter 1992

“Human sense is understanding how to live in the human and physical worlds that children normally develop in the first few years of life.

It is learned spontaneously in direct encounters with these worlds that arise unavoidably everywhere, transcending cultural differences. The learning is always **informed and guided by emotion** - that is, by *feelings of significance, of value, of what matters*. And it is highly stable and enduring, once established -- **the foundation on which all that follows must build.**”

THE STORIES ARE TOLD WITH FEELING



The child psychiatrist and psychoanalyst Daniel Stern, who died in 2012, presented a revolutionary theory of infant development, and led a new psychotherapy.

1985

“FORMS OF VITALITY: Exploring dynamic experience in psychology, the arts, psychotherapy, and development.” **Daniel N. Stern M. D.**
Oxford University Press, 2010.

“Vitality dynamics are psychological, subjective phenomena ... felt as aliveness ... designed to fit the workings of the human world. They are. ... **shapes of expressive movement.** They concern the **How**, the manner, the style, not the What nor the Why. Vitality dynamics are the child of movement. movement is our primary experience and vitality dynamic experience is the most primitive and fundamental of all felt experience”.

A THEORY OF CREATIVE MOTIVES FOR CULTURAL LEARNING

An infant is an eager and creative learner in a family, proudly responding to parents' affection, and the fun of games, going places, doing things, and stories. Toddlers seek friendship with other children, to share the enjoyment of what they imagine and hope to do and know. With their mobile bodies and wit they explore an imaginative and sensuous 'unreality' with playmates. This **SECOND PERSON CONSCIOUSNESS** or **confidence in self-knowing with others** is what psychologists call 'self-awareness' or 'personality'. It is, innate, not learned, but we have to learn its use. **It is the foundation for all knowledge and skills – and for learning language.**

Sarah Wurz (2009). *Southern African Humanities - Interpreting the fossil evidence for the evolutionary origins of music.*

A new perspective discussed in this paper is that vocal learning capabilities could have evolved from a simple laryngeal vocalization, or a grunt. The burgeoning literature on the neuroscience of musical functions is of limited use to investigate the origins of rhythmical and vocalization capabilities, but the out-of-proportion evolution of the cerebellum and pre-frontal cortex may be relevant.

"It suggested that protomusic was a feature of *Homo ergaster* 1.6 million years ago. Protomusic consisted of entrained rhythmical whole-body movements, combined with grunts. *Homo heidelbergensis*, 350 000 years ago, had a brain approaching modern size, had modern-style breathing control essential for singing, and had modern auditory capability, as is evident from the configuration of the middle ear. The members of this group may have been capable of producing complex learned vocalizations and thus modern music in which voluntary synchronized movements are combined with melodies."

(Cf Stern 2000 on movement in therapy)



RHYTHMS OF RELATING IN CHILDREN'S THERAPIES

CONNECTING CREATIVELY WITH VULNERABLE CHILDREN

Edited by Stuart Daniel and Colwyn Trevarthen

Stuart Daniel and Colwyn Trevarthen, 2017, London: JKP

This multidisciplinary book shows how to foster meaningful relationships between therapists and vulnerable children, through exploring the concept of communicative musicality and creating rhythms of connection.

It includes broad and in-depth contributions from leading therapists from diverse backgrounds - including Peter A. Levine, Daniel Hughes, Stephen Porges, Dennis McCarthy, and many more.



In the 18th Century, **Francis Hutcheson**, Professor of Moral Philosophy at Glasgow

University, scandalized many in the church with the assertion that morality should be judged by the feelings of happiness it engenders in others.. He held that sympathy and morality were innate principles in humankind, not dependent upon reason.

Hutcheson's pupils **Adam Smith** and **David Hume** were influenced by this teaching and elaborated it, though in different ways.

"As a disposition to imitate is natural to mankind from their infancy, so they universally receive pleasure from imitation. ... Another important determination or sense of the soul we may call the *sympathetic*, different from all the external senses; by which, when we apprehend the state of others, our hearts naturally have a fellow-feeling with them. ... We see this principle strongly working in children, where there are fewer distant views of interest. ... This sympathy seems to extend to all our affections and passions. They all seem naturally contagious."(Francis Hutcheson, 1755, *A System of Moral Philosophy*, Vol. I, Chapter 2)

Ray Birdwhistell (1918 – 1994)

Anthropologist and linguist. Founder of '**kinesics**' – communication by culturally patterned "facial expression, gestures, posture and gait, and visible arm and body movements". Author of *Kinesics in Context* (1970)



He estimated that, "no more than 30 to 35 % of the social meaning of a conversation or an interaction is carried by the words."