



Biography for JENS BLAUERT

JENS BLAUERT

- Jens Blauert was born in 1938. He studied communication engineering at Aachen, where he received a Doctor-of-Engineering degree in 1965. In 1973, he delivered an inaugural dissertation to the Technical University of Berlin (habilitation) and in 1984 he was awarded an honorary Dr. Technics degree by the University of Aalborg (Dr.). Since 1974 he held a chair in electrical engineering and acoustics at the Institute of Communication Acoustics of the Ruhr-Universität at Bochum, where he gained the status of Professor emeritus in 2003. He is a professional acoustical consultant, chartered in the state of North-Rhine Westphalia. His major fields of current interest are binaural technology, models of binaural hearing, architectural acoustic, noise engineering, product-sound design, speech technology, virtual environments and telepresence.
- The author/coauthor of more than 140 papers and monographies, Prof. Blauert, has been awarded several patents. A former chairman of the ITG committee on electroacoustics, dean of the Faculty of Electrical Engineering & Information Technologies at Bochum, senator of the Ruhr-Universität, chairman of the board of the European Acoustics Association, EAA, associate board member of the ICA, member of the Environmental-Protection Council of the State of North-Rhine Westphalia, member and cofounder of the European Speech Communication Association, now ISCA, he is a board member of the section on Units and Symbols, AEF, of the German Standard Association, DIN. He also is a cofounder and board member of the German Acoustical Society, DEGA, and the section on Noise and Vibration, NÄLS, of the German Standard Association, DIN. Further a honorary member of the Polish acoustical society, a Fellow of ASA, IEEE, and AES, and a member of various further technical and scientific committees and societies. Currently, he is president of the German Acoustical Society, DEGA.



Jens. Blau

DEPARTMENT OF MUSIC

THE UNIVERSITY OF CHICAGO





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早稲田大学 教授

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... (CNSA) } *crowd*
itory Scenes (VR) }
tual Reality and Culture *culture*



Concepts and Trends in Communication Acoustics

Jens Blauert, IKA Bochum, Germany

What is that: Communication Acoustics?

concept

Analysis of Auditory Scenes (CASA)

Synthesis of Auditory Scenes (VR)

} *trends*

Some Remarks on Virtual Reality and Culture

cultural



Concepts and Trends in Communication Acoustics

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What is that: Communication Acoustics?

concepts

Analysis of Auditory Scenes (CASA)

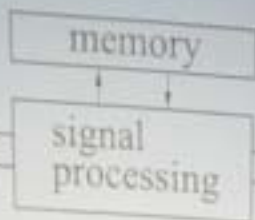
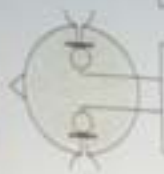
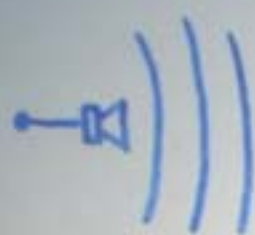
Synthesis of Auditory Scenes (VR)

} *trends*

Some Remarks on Virtual Reality and Culture

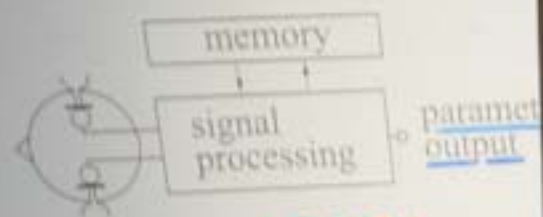
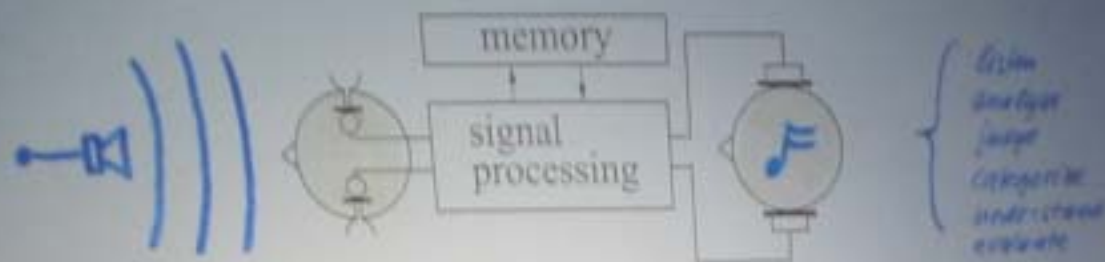
culture





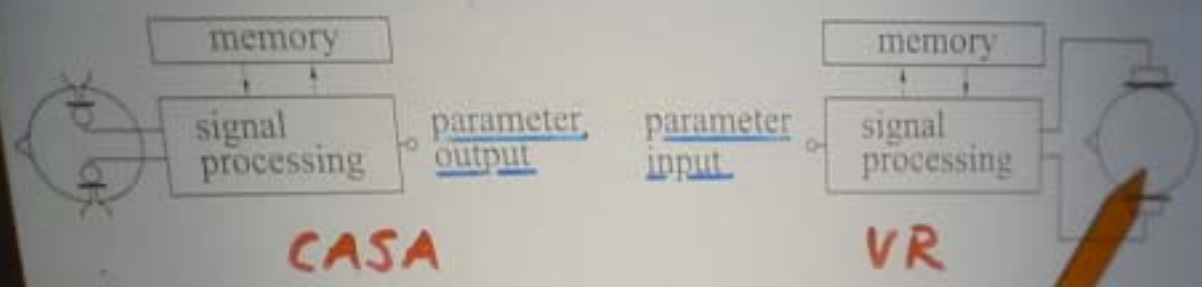
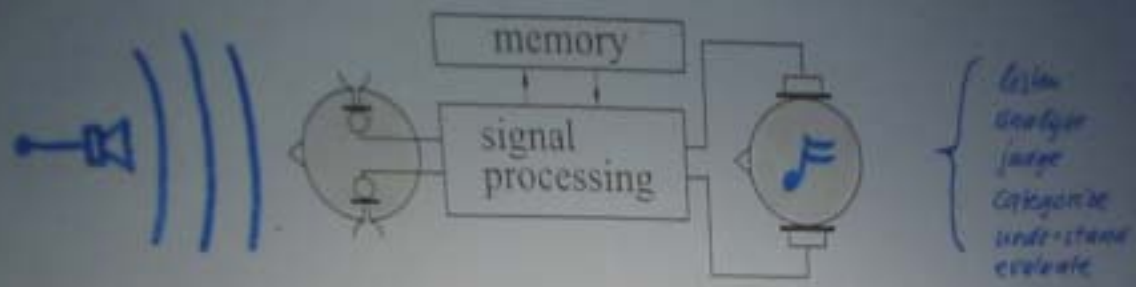
listen
analyze
judge
categorize
understand
evaluate



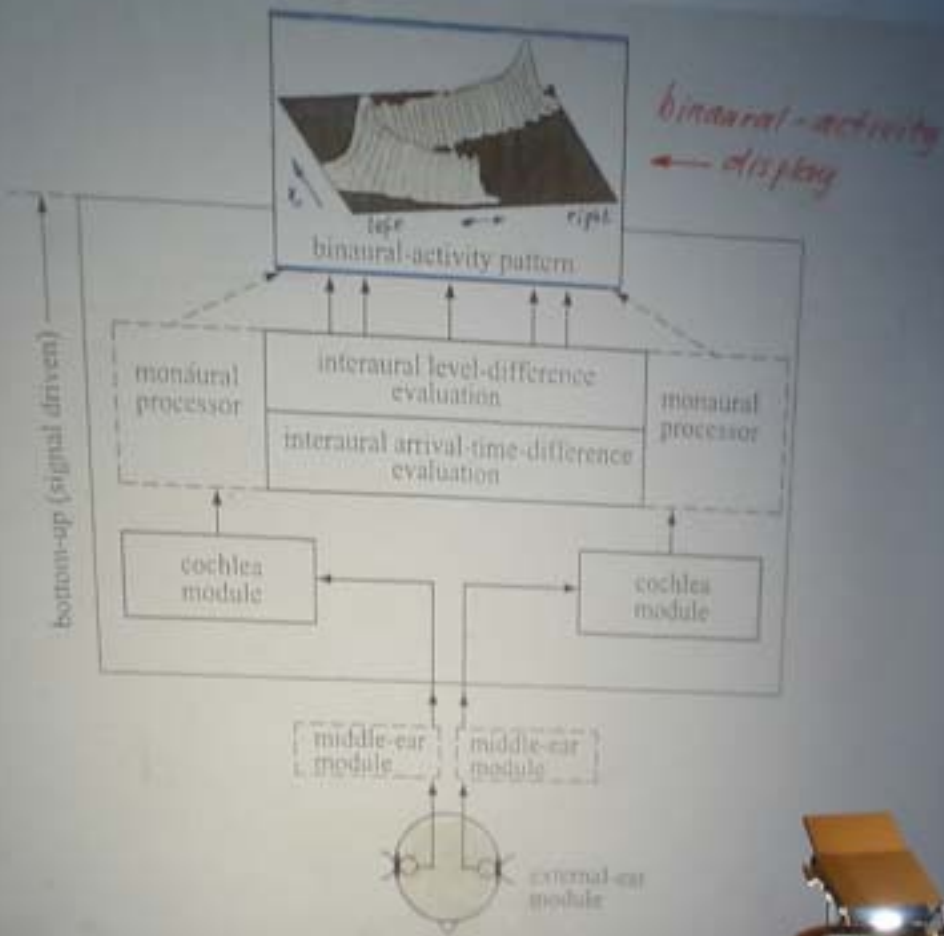


CASA



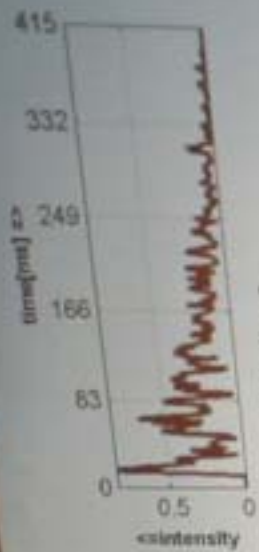


- Wiederhülle 1980
- Lindemann 1985
- Walt 1991
- Furia 1990
- Godden 1992
- Rabinovich 1998
- Stroka 1997
- Hartung 1998
- Ulfrey 1993
- Braun 2001
- Hjelani 2001
- Kudoh 2002
- Hef (2001)

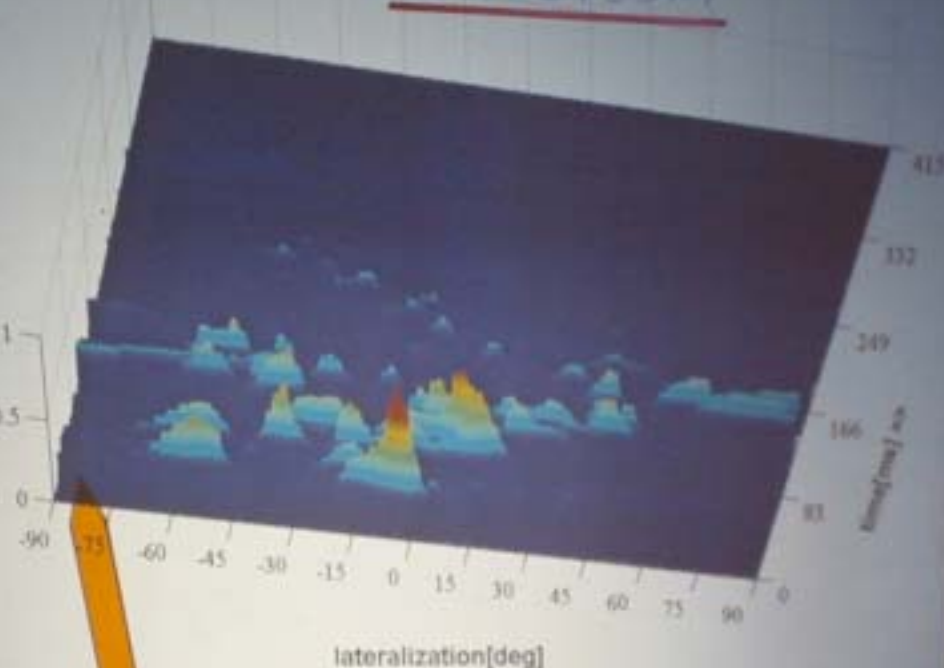


Ref. 2003

Classroom



Intensity \Rightarrow



lateralization[deg]

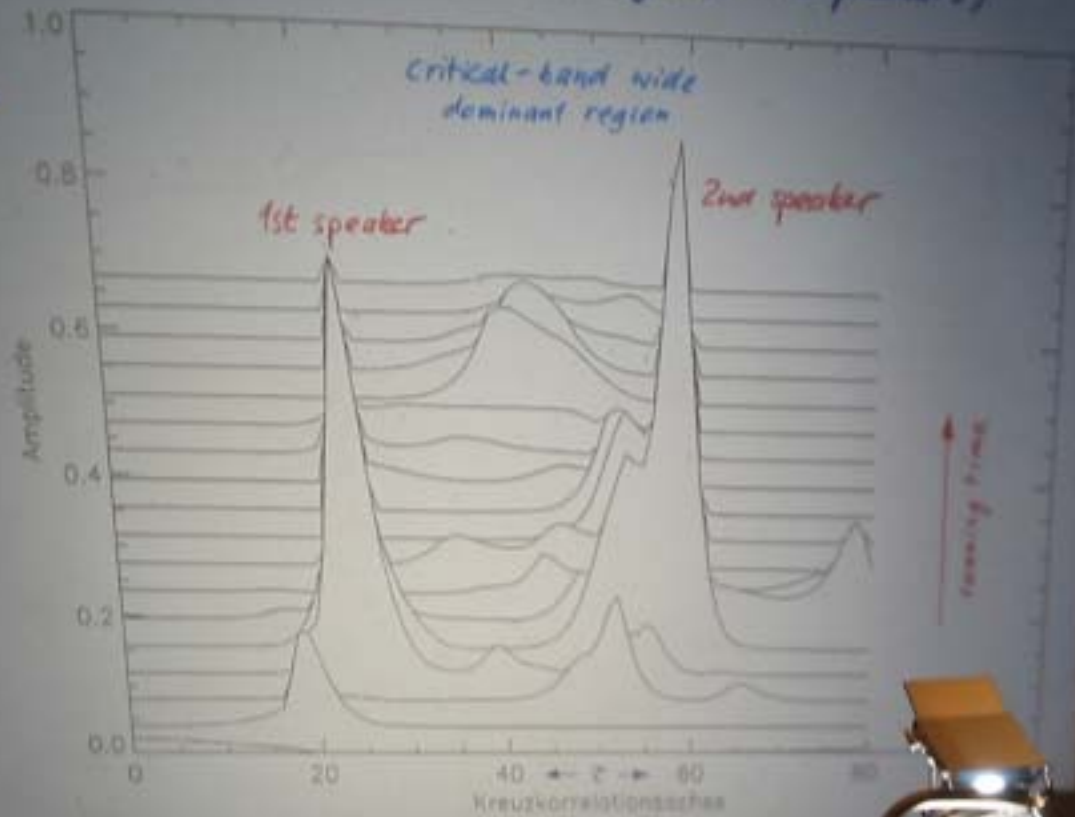
Seminarroom

band 6 - 8
cntr frq 527 - 715 Hz
cs=0.5 wt=0.035
monaural processors on
trading off



Orin
1980
Eckes
1982
Luttschek
1987

Binaural-activity plot:
Instantaneous Binaural Correlogram (2 Speakers)



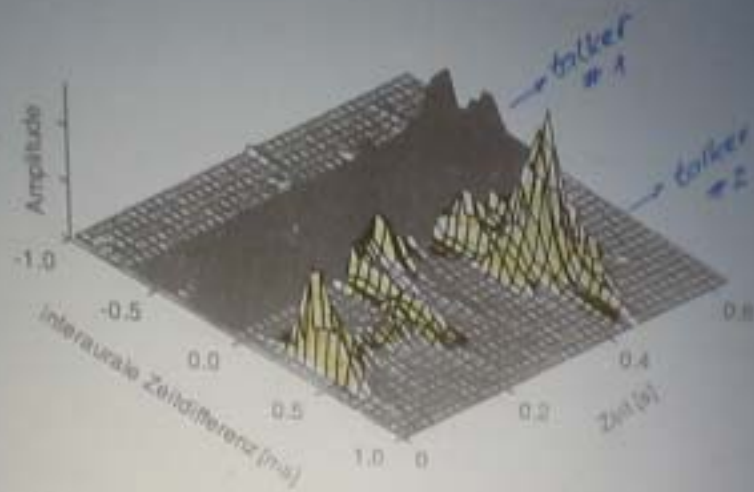


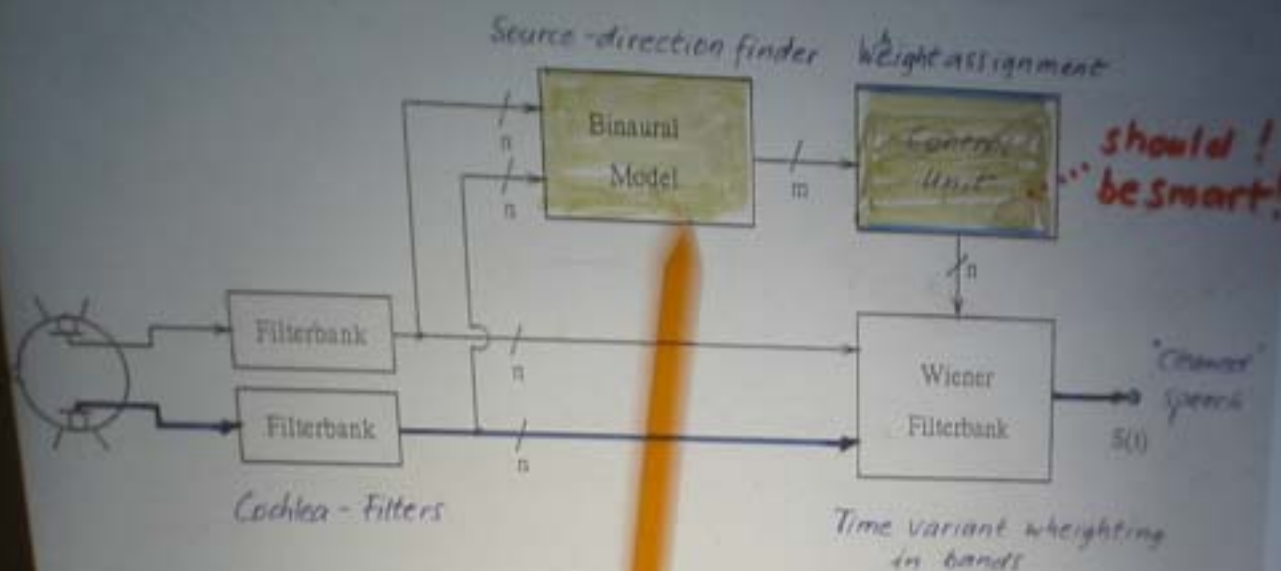
Bild 3.10: Binomales Erregungsprofil in der Frequenzgruppe II für den Fall zweier kontinuierlicher Töne bei den Azimuten -30° und 45° . Der grau schattierte Bereich zeigt die Position der Erregungsquelle für den bei -30° Azimut befindlichen Sprecher an.

RatteitSchek:

1998

Windowing the binarrel activity pat





Binaural Cocktail-Party-Processor Schematic

Aufbau des Systems zur Modellierung des Cocktail-Party-Effekts

FAEA
BOCHUM

Gaik 1990, Badden 1992, Slatky 1991



Robke: 1997

Single Source
with reverb



Bild 4.2 Modellierungsergebnisse Gauß-Modell in reflexionsreicher Umgebung. Eine Schallquelle befindet sich in der Mitte. Links Originalmodell, rechts ein phänomenologisches Modellierung des Präambenverhaltens.

Gauß: 1990

Single Source
with and
without reverb

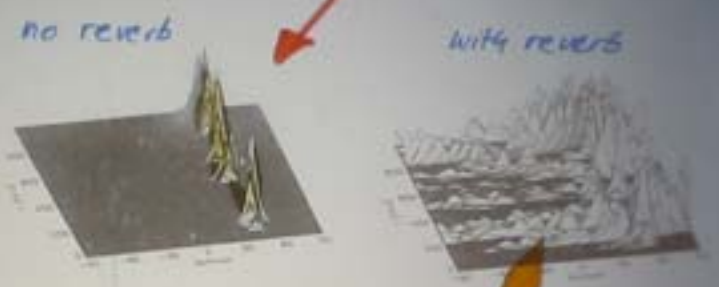


Bild 1.7 Modellierungsergebnisse von Gauß (1990). Links eine Quelle in reflexionsreicher Umgebung, rechts eine Quelle in reflexionsarmer Umgebung. Dargestellt sind die Kurven der Amplitude über die Zeit.

The problem of reverberation
Das „Nachhallproblem“

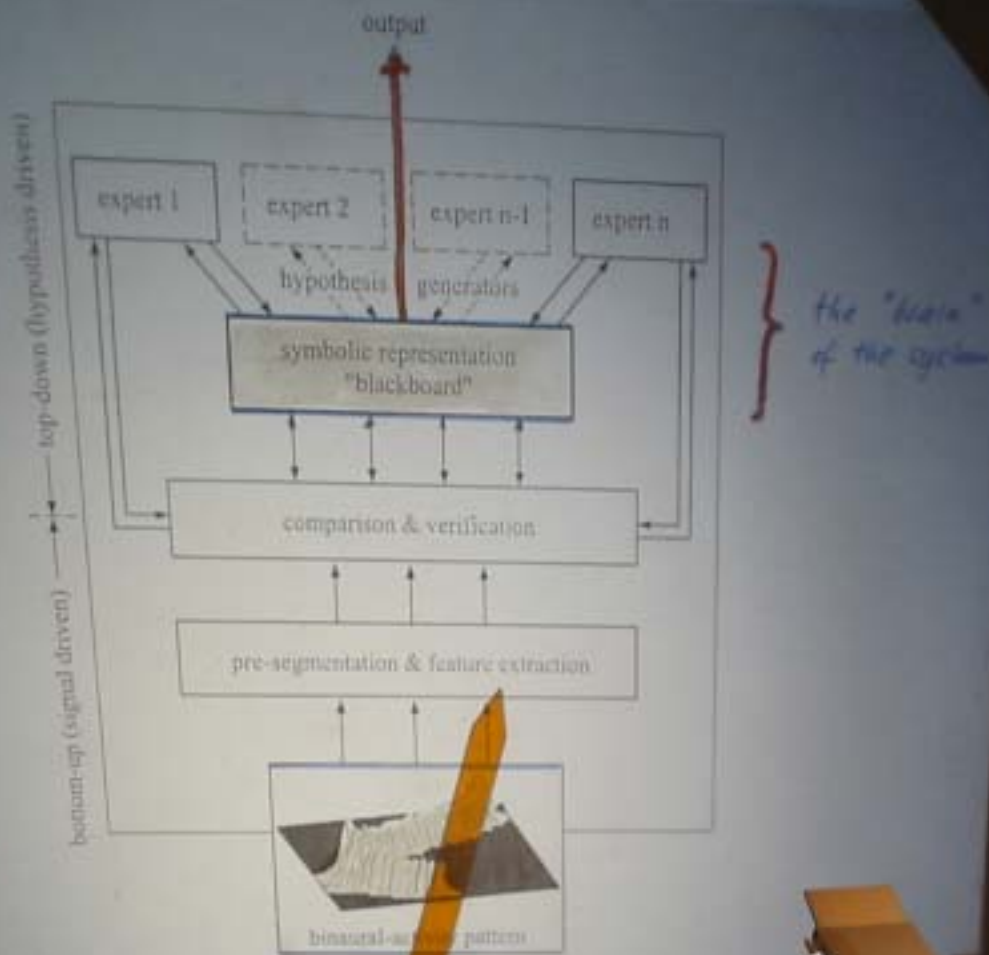
Verarbeitung
(mit färbung)
in Zool
-Source Situation
nach Zoo 2



Content

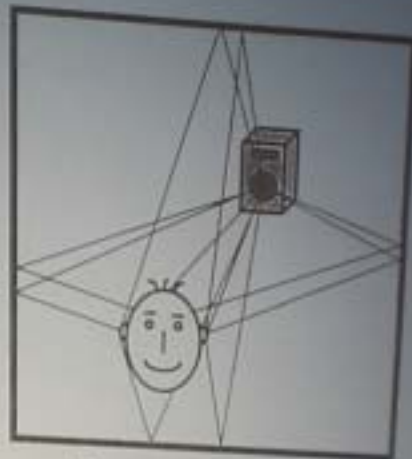
Symbols

Signals





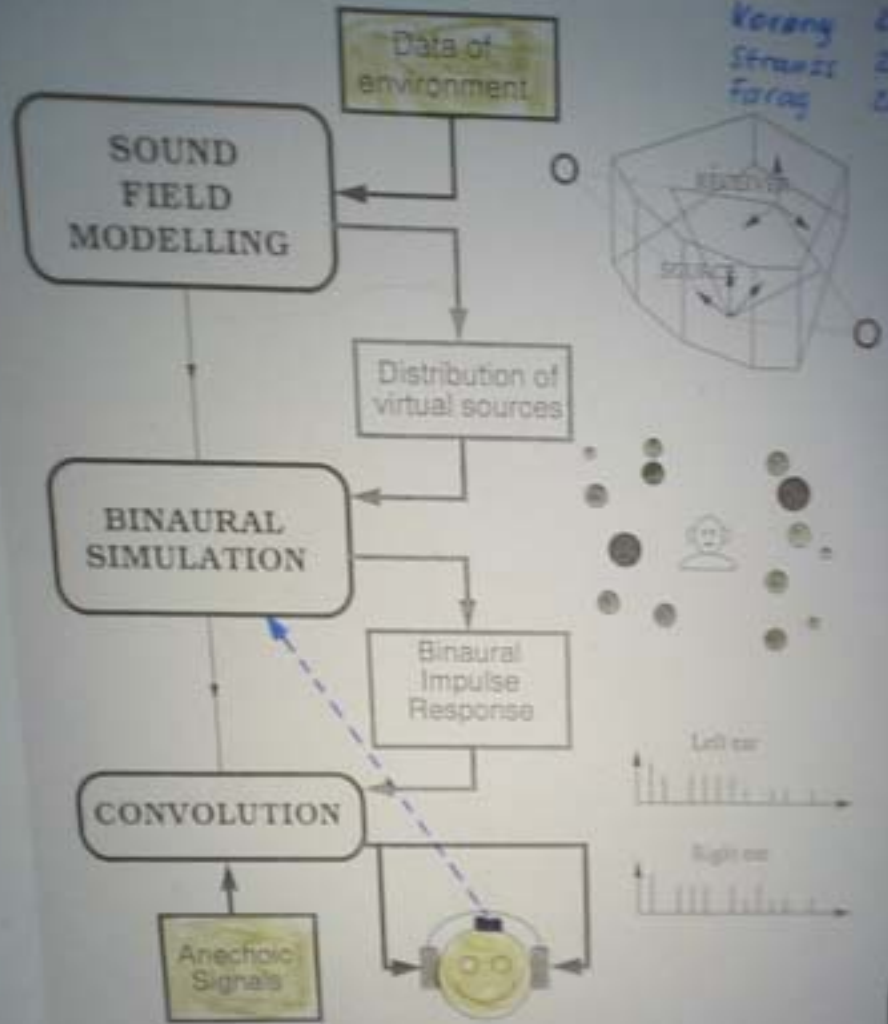
Anechoic room



Real Environment



Lehnert 1992
 Giron 1997
 Korany 2000
 Strauss 2001
 Farag 2002

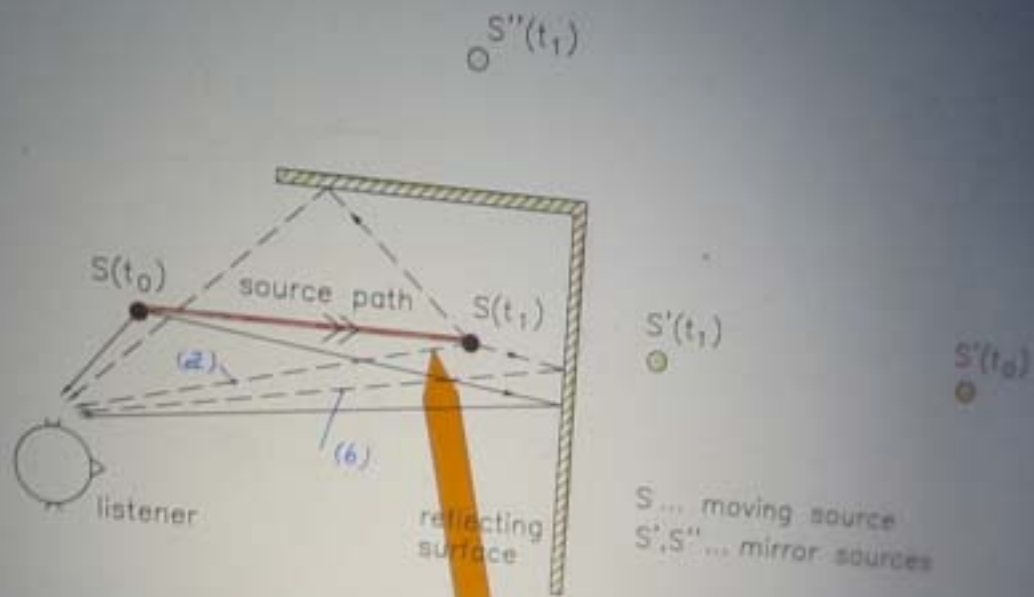


Auditive "Renderes"





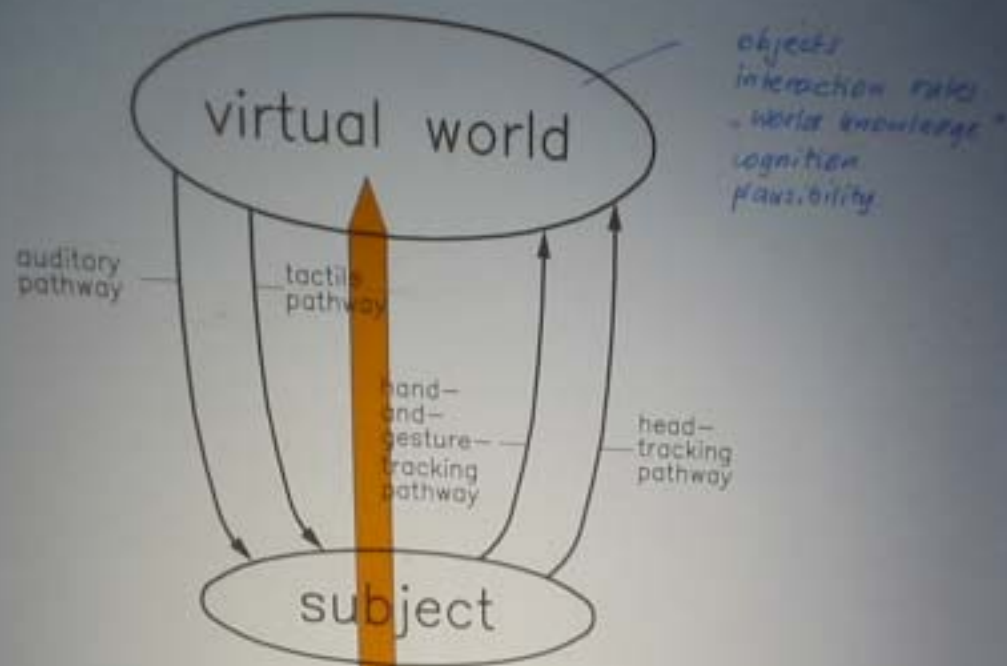




Strauss 2000

Doppler - Effekte
Doppler shifts

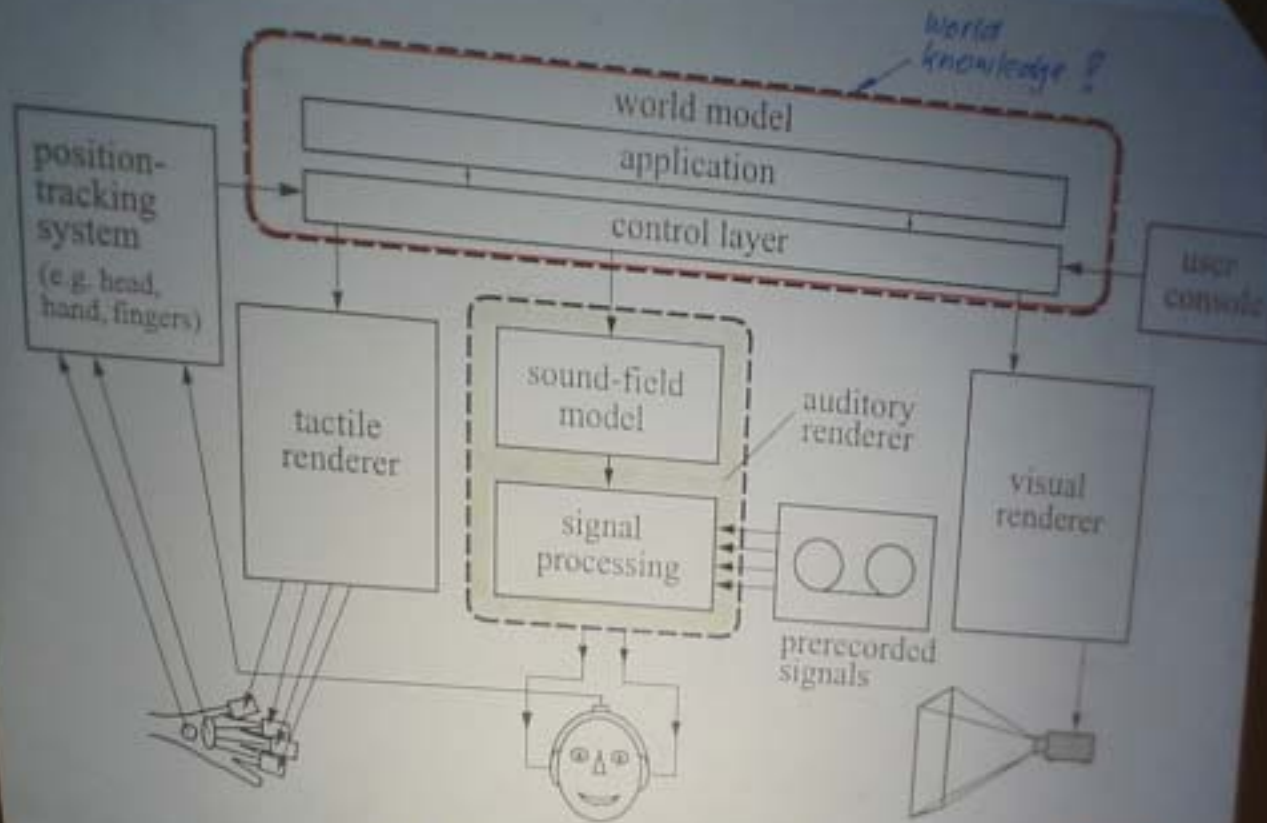




objects
interaction rates
- world knowledge -
cognition
plausibility

Interactive VR-Generator (Schematic)





Multimodal VR Generator





