

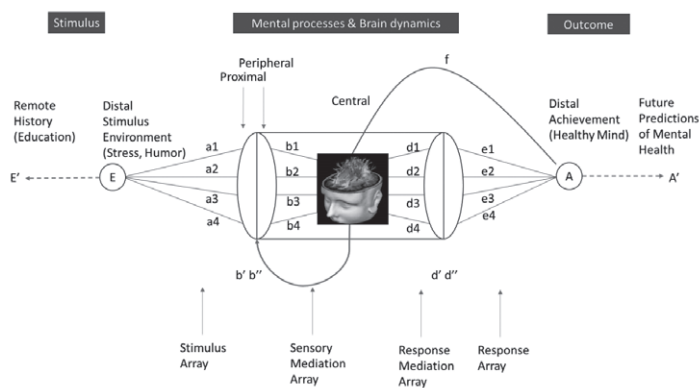
Improvising Humor: I Can, But AI Can't, Not Yet!

Ovid J. L. Tzeng,
Hsu-Wen Huang (黃緒文), and Rose R. W. Lee (李如蕙)
 Member, European Academy of Sciences and Arts
 Chancellor, University System of Taiwan

Humor is the ultimate form of human intelligence. Its production integrates I.Q., E.Q., S.Q., and C.Q. to provide linguistic as well as cartoon images, which manifest the invaluable human wisdom. In a civilized society the production, perception, comprehension, and appreciation of humor is a unique cognitive capacity in human being, resulting from cognitive development and socio-cultural learning across the life span.

To produce and appreciate humorous acts (verbal, gestures, and cartoons) in various contexts, human brain has to effectively and dynamically link perceptual inputs with distributed, multi-modal information processing mechanisms supported by complex neuronal connections. Research has shown that the critical brain areas for humor comprehension include the inferior frontal cortex, superior temporal lobe, and cingulate cortex which involves auditory, visual, semantic knowledge, and monitoring systems. Even though AI algorithms could help to decode correct patterns of functional connectivity among neurons based upon deep learning, it is still very hard for AI to mimic appropriate improvised humorous behaviors of human being in complicated communicative contexts.

In order to provide a more detailed diagram that characterizes and depicts the processing complexity of producing and appreciating humorous acts, it is important to recognize that the production of appropriate humor requires a complex system of dynamic processes of integrating proximal and distal stimuli with their respective correlated psycho-socio-cultural factors. The complexity can be characterized in terms of the probabilistic functionalism proposed long ago by Brunswick and later modified by Lewis Petrinovich (1979), as shown in the following diagram.



Most people can generate jokes. But appropriate humor is difficult to come by. Improvising humor is even more difficult to be produced. Nevertheless, history tells us that improvising humor is the best characteristic feature of human creative dialogs in social communication. Human has the capacity to perceive, recognize and produce humor sentences and cartoon images instantly. Does AI have a similar capacity? My answer is NO at the moment, but MAYBE in the future, depending on our ability to clearly define the concept of improvisation. But the debate will certainly be with us for a long time.