

Pengenalan pola-pola

(Pattern recognition)

- Suatu keterampilan yang menunjukkan seberapa baik manusia menguasai sesuatu
- Ada 3 teori:
 - Teori template
 - Teori Feature
 - Teori Struktural

Teori template

- Manusia membandingkan dua pola dari seberapa jauh kedua pola tersebut saling “overlap”
- Tidak bisa diterapkan untuk semua proses pengenalan pola

Teori Feature

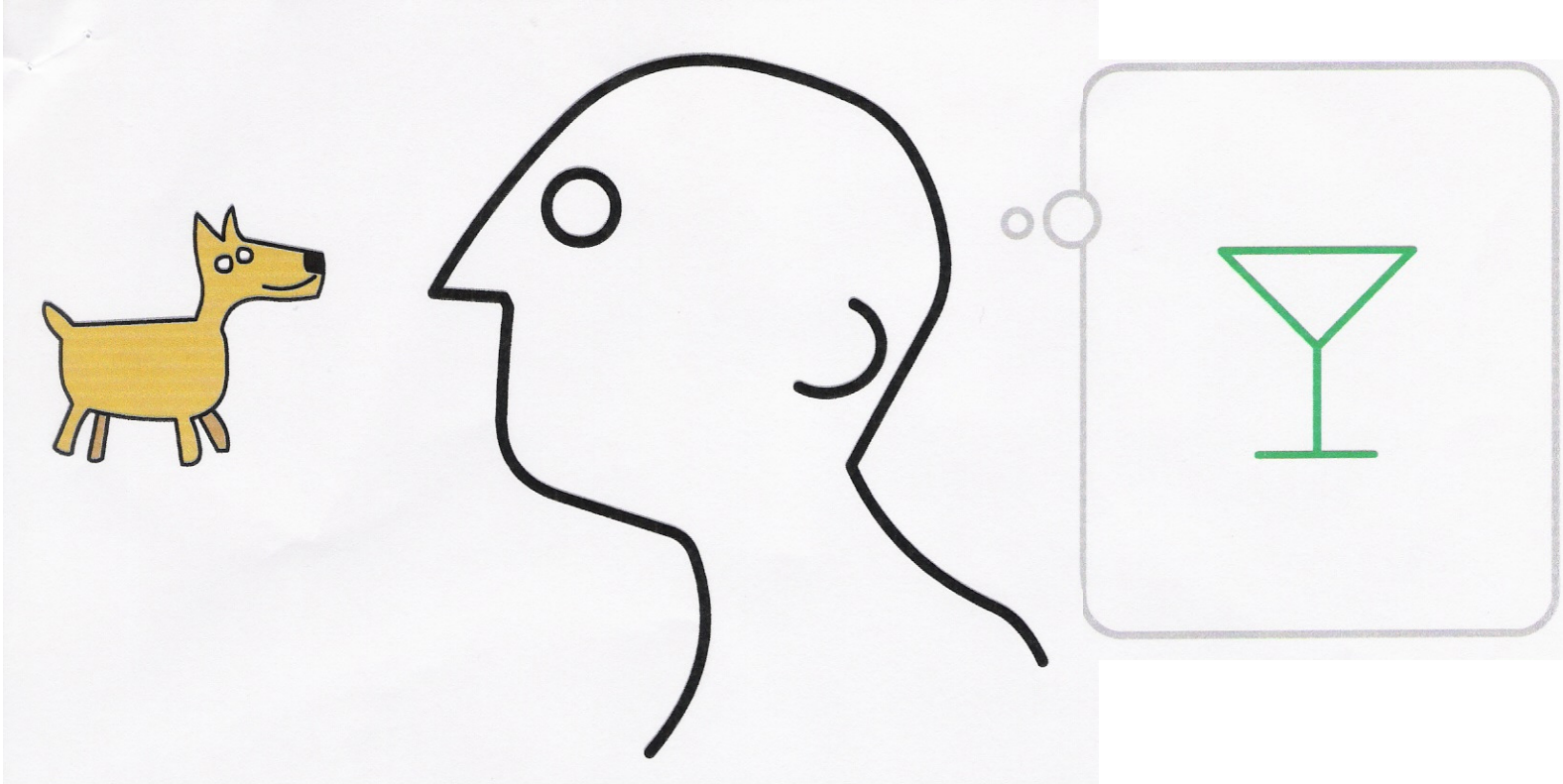
- Pola-pola diuraikan ke dalam “fitur-fitur”
- Teori yang paling umum, dapat digunakan untuk setiap proses perseptual yang kabur

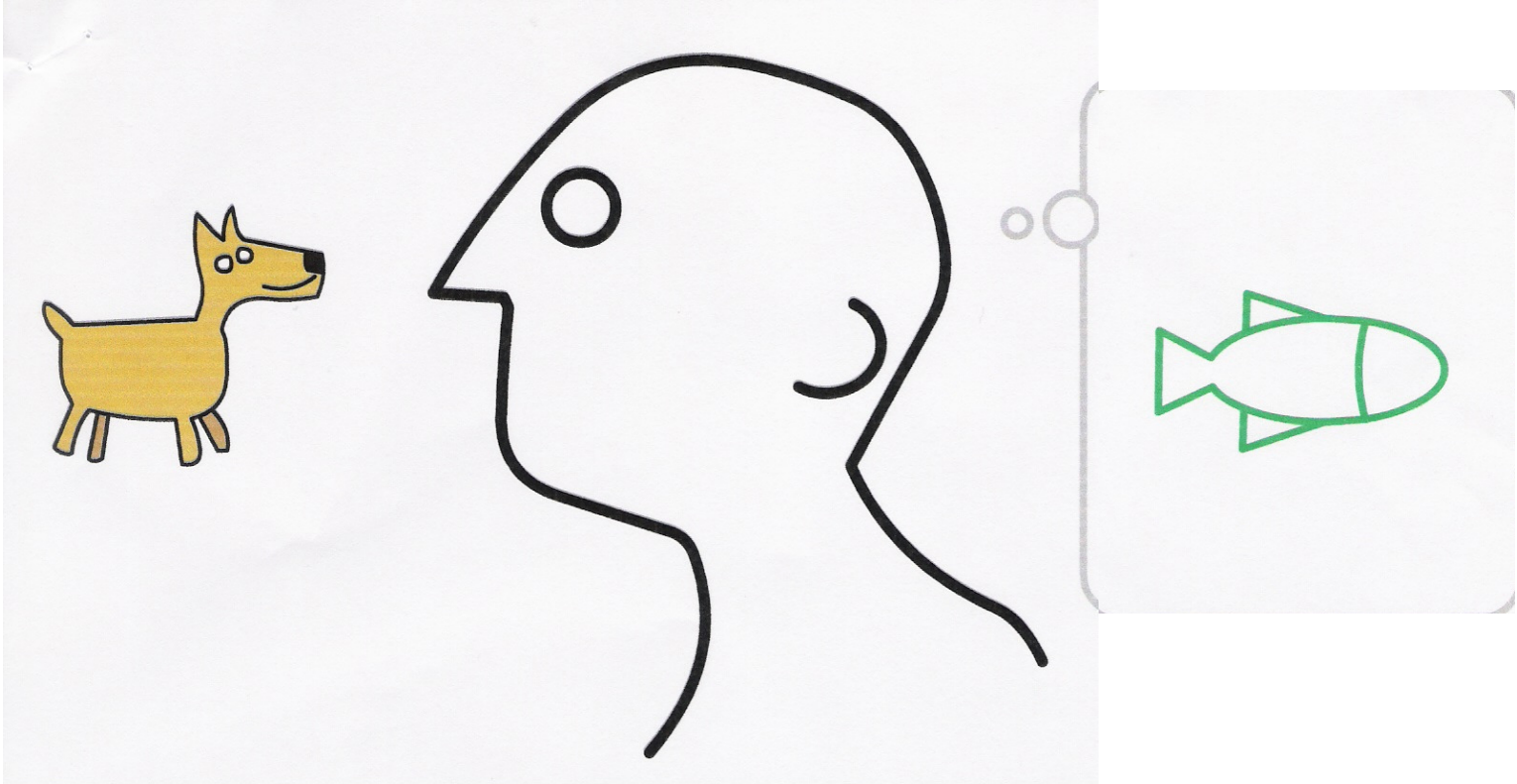
Teori Struktural

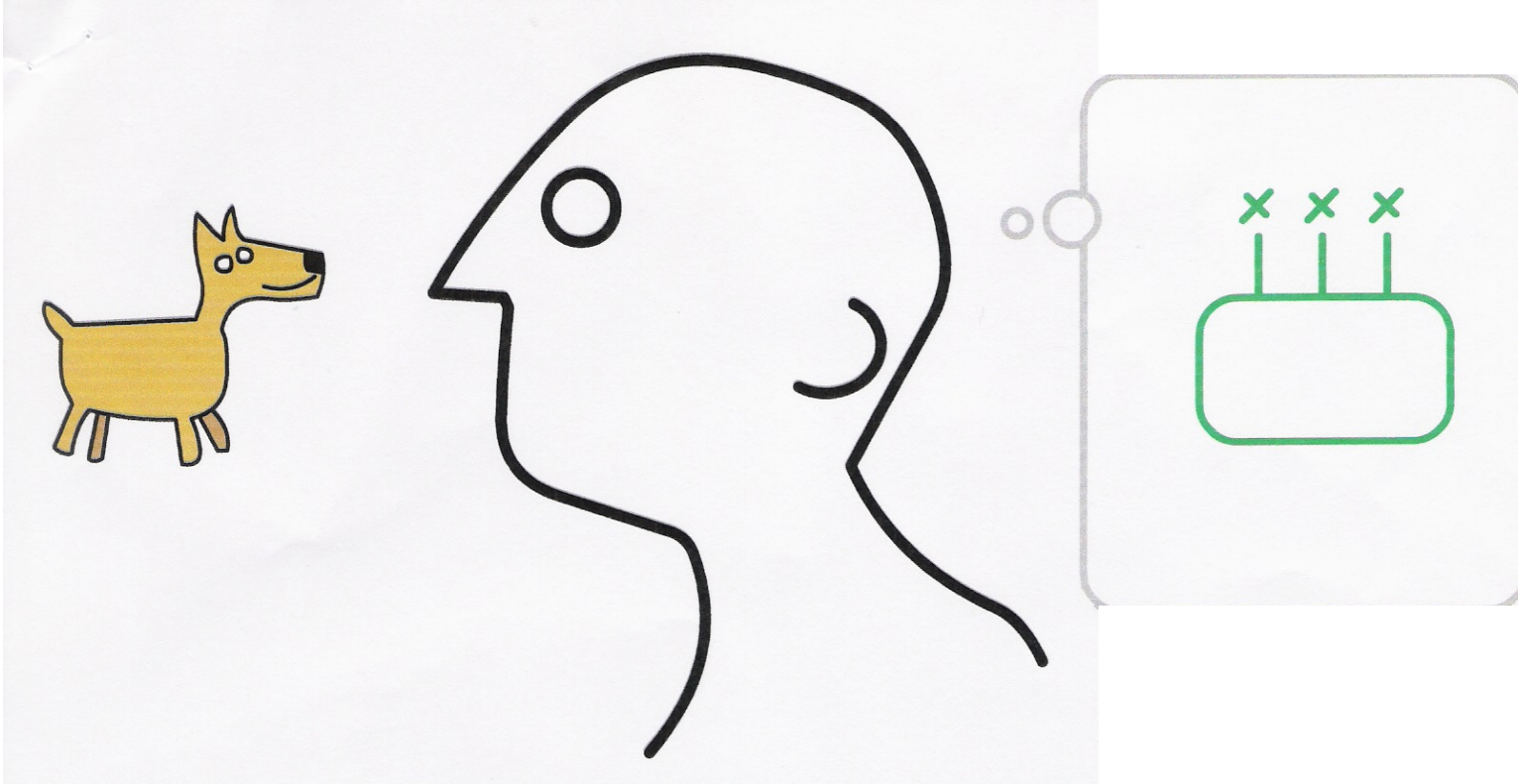
- Menjelaskan secara jelas bagaimana fitur-fitur itu disatukan.
- Deskripsi lebih kompleks

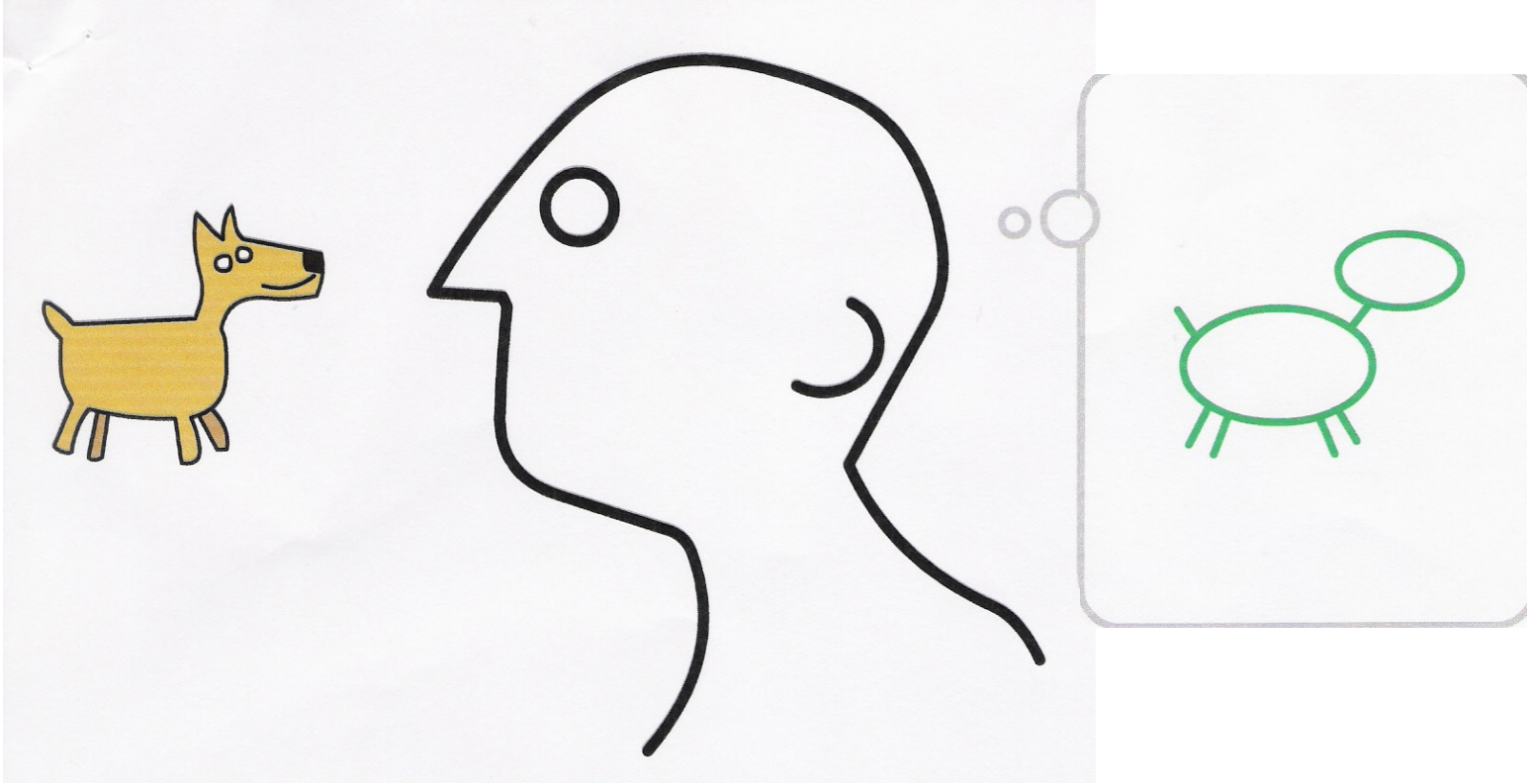
Template Matching

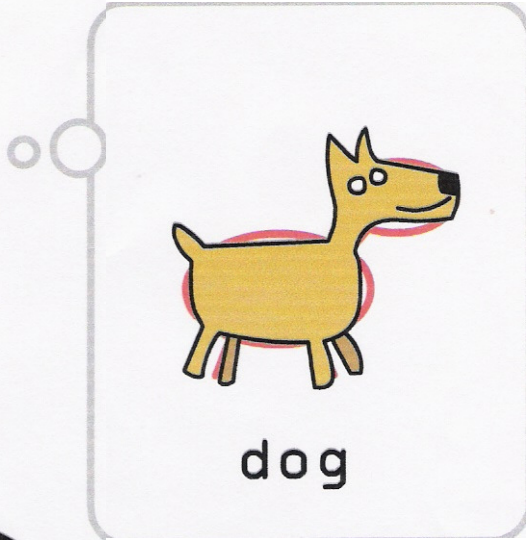
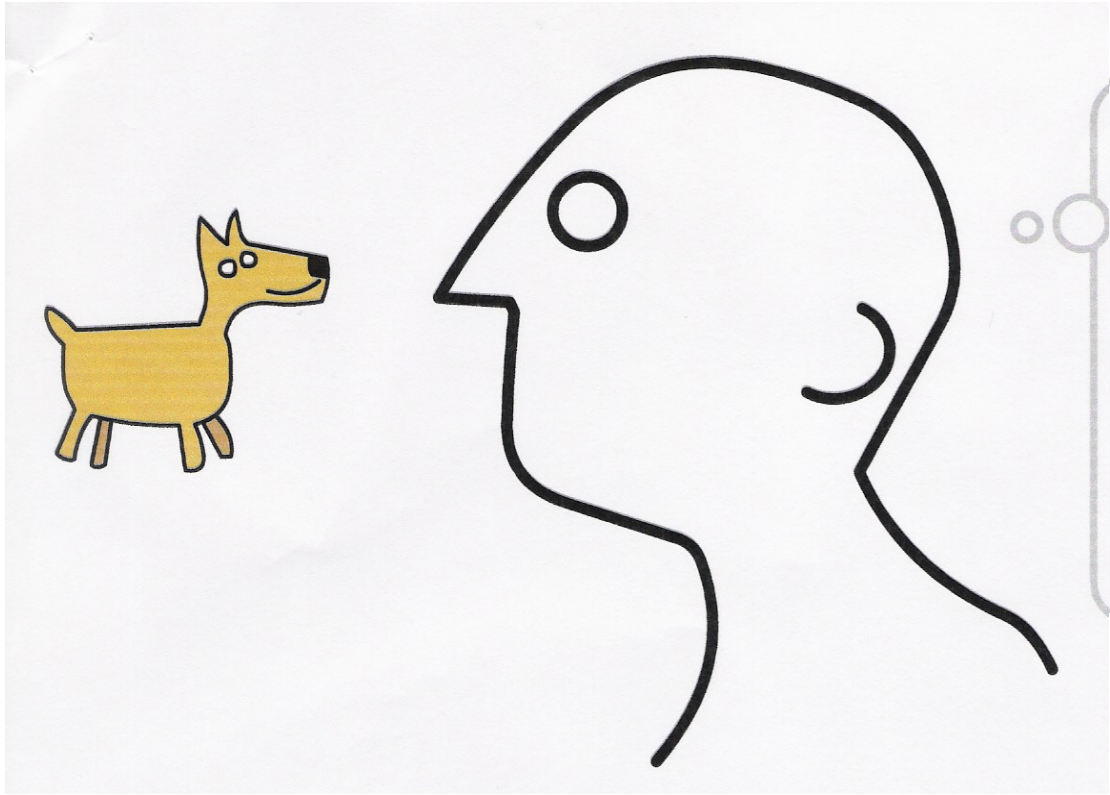
According to a theory called Template Matching (ref), in order to recognize an object, we compare it to images of the similar objects that we have stored in memory. By comparing to a variety of stored candidates, we identify the object by the one that it most closely resembles.





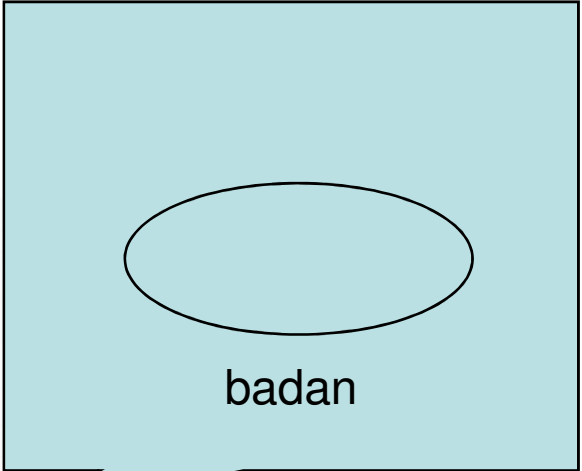
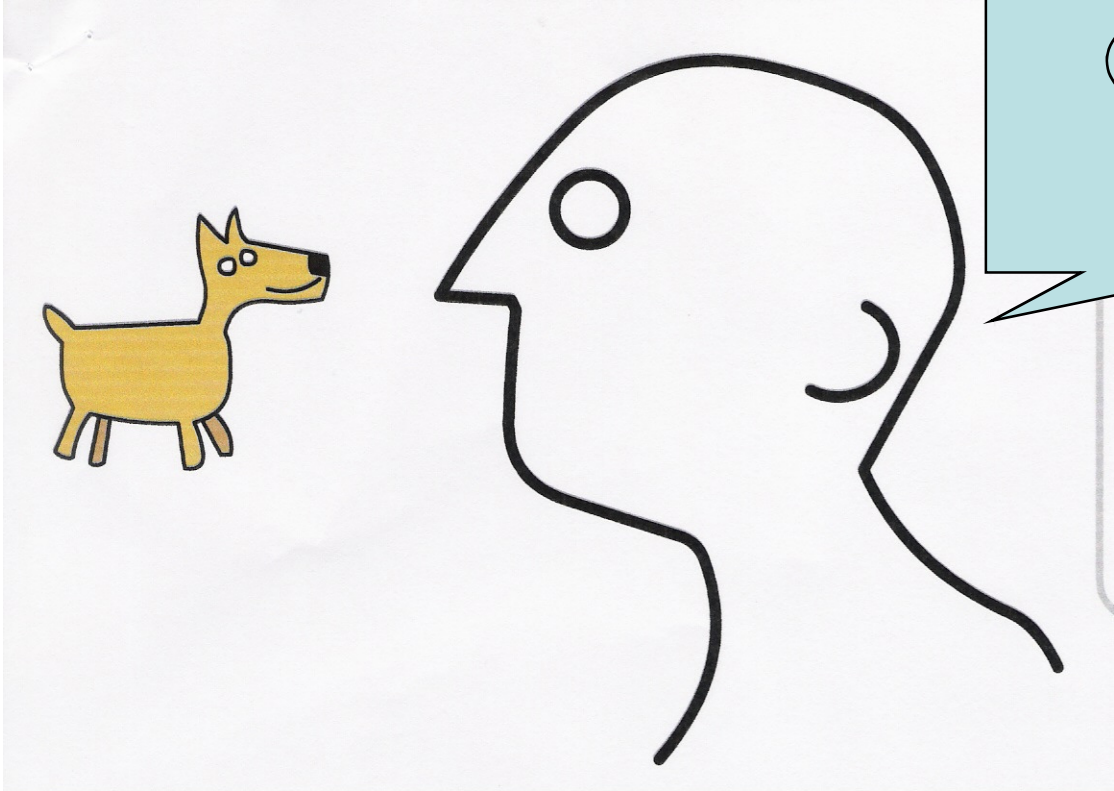




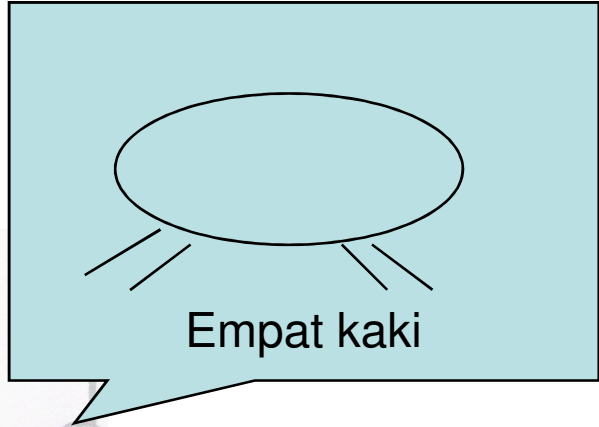
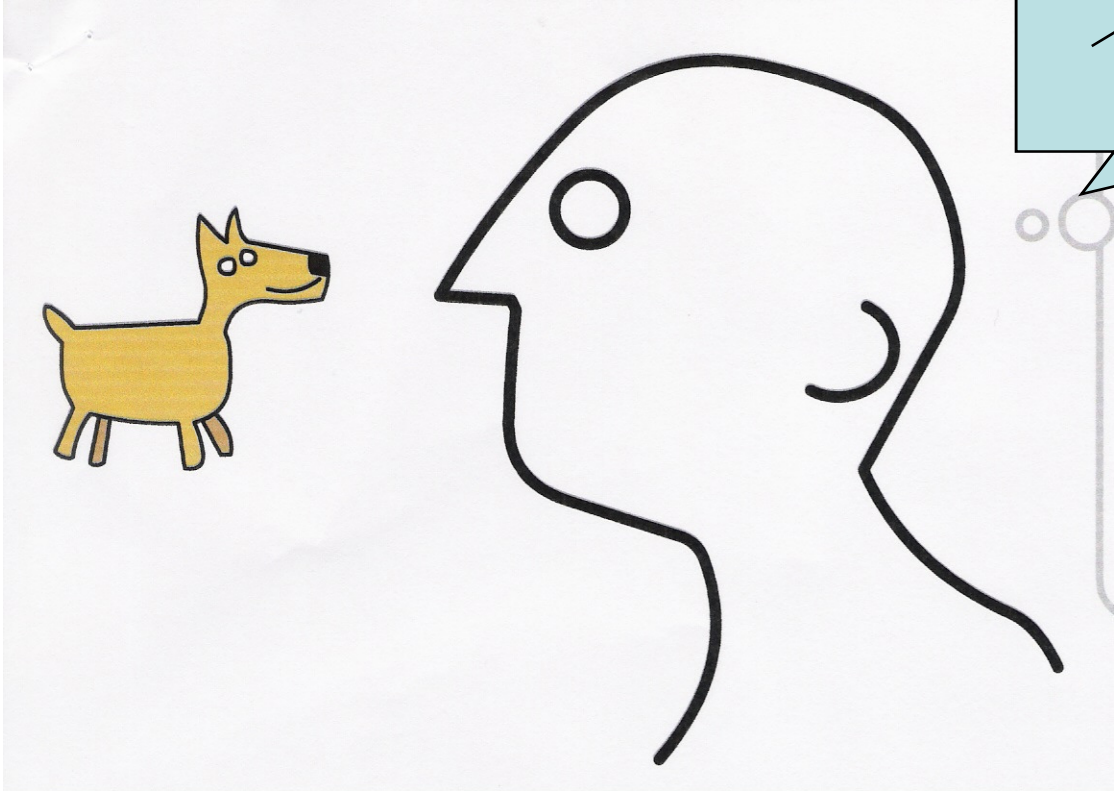


Feature-Analysis (also known as Feature-Detection),

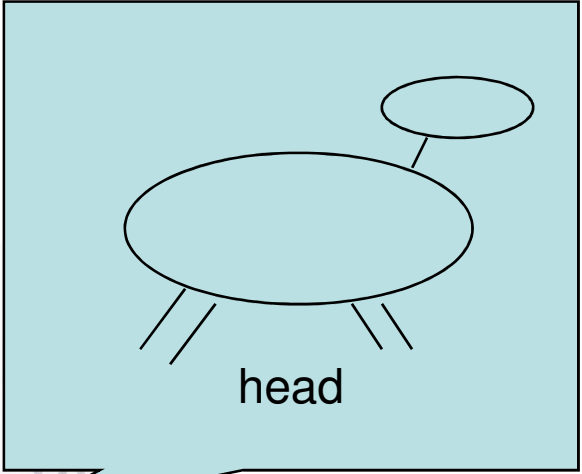
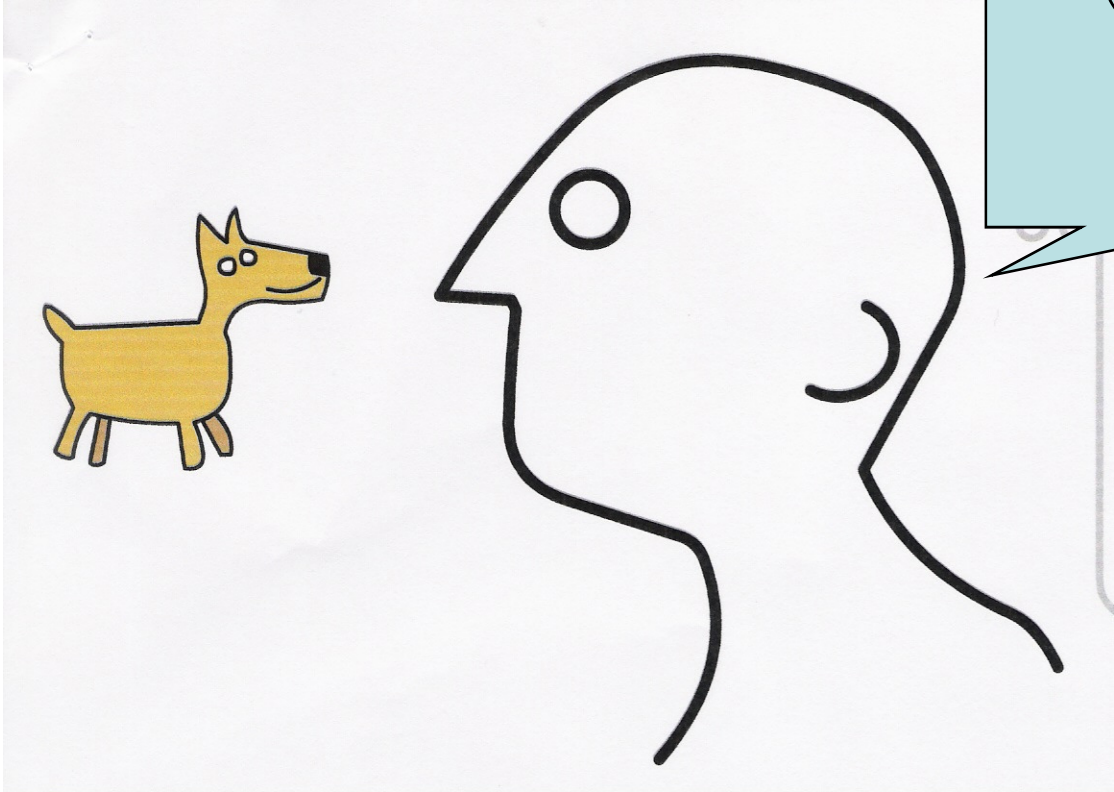
Whereas in template matching, the whole object is compared to a stored set of whole objects, in Feature-Analysis (also known as Feature-Detection), we recognize objects by assembling their "features" to determine what the object is. For example, we know that a chair typically has a vertical back, a horizontal seat, and vertical legs. When we see a chair, we recognize it for what it is because it satisfies these rules for what a chair is.

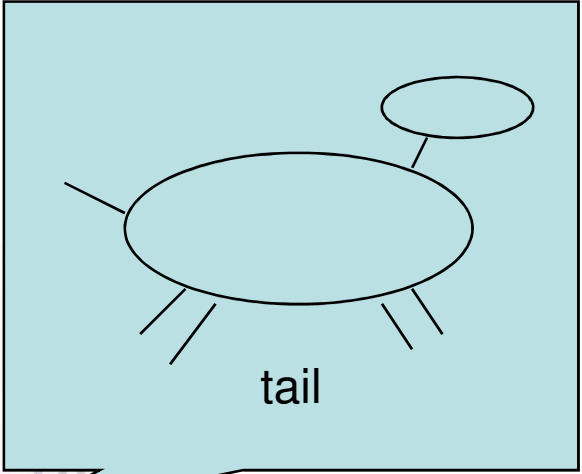
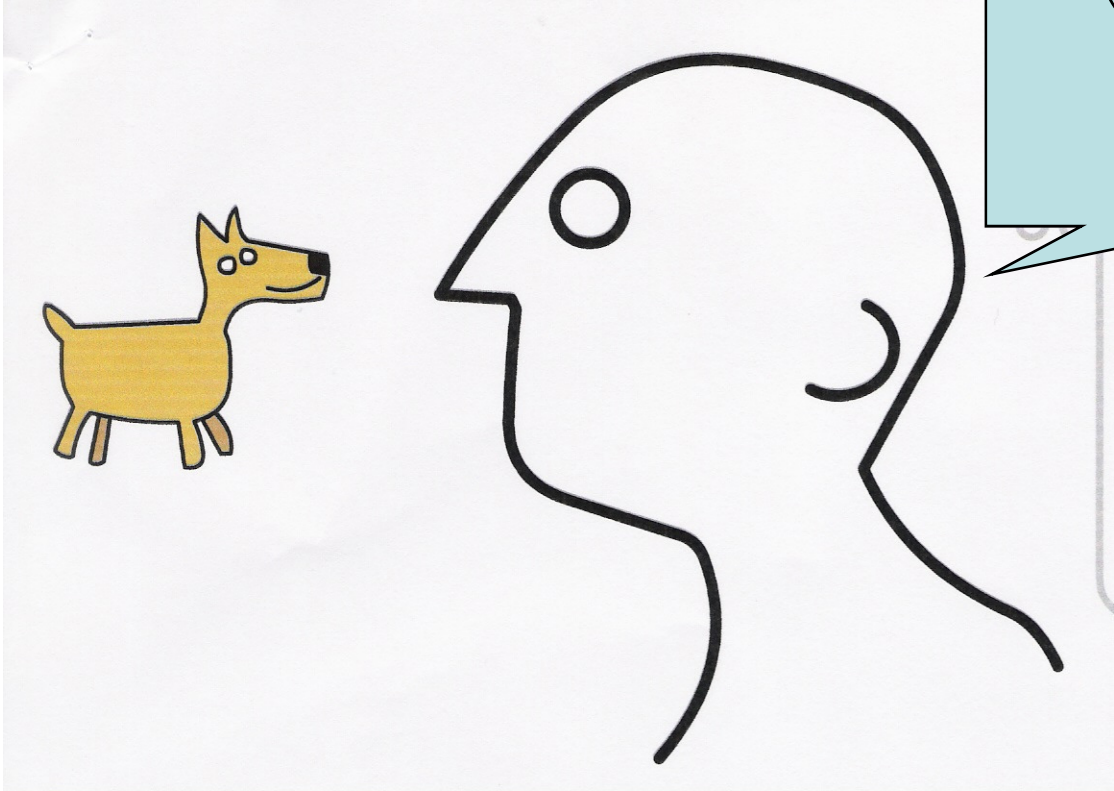


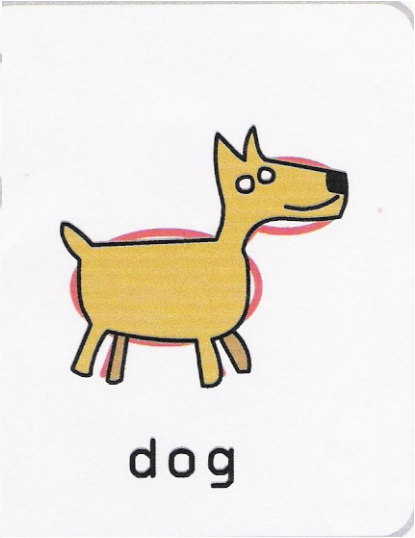
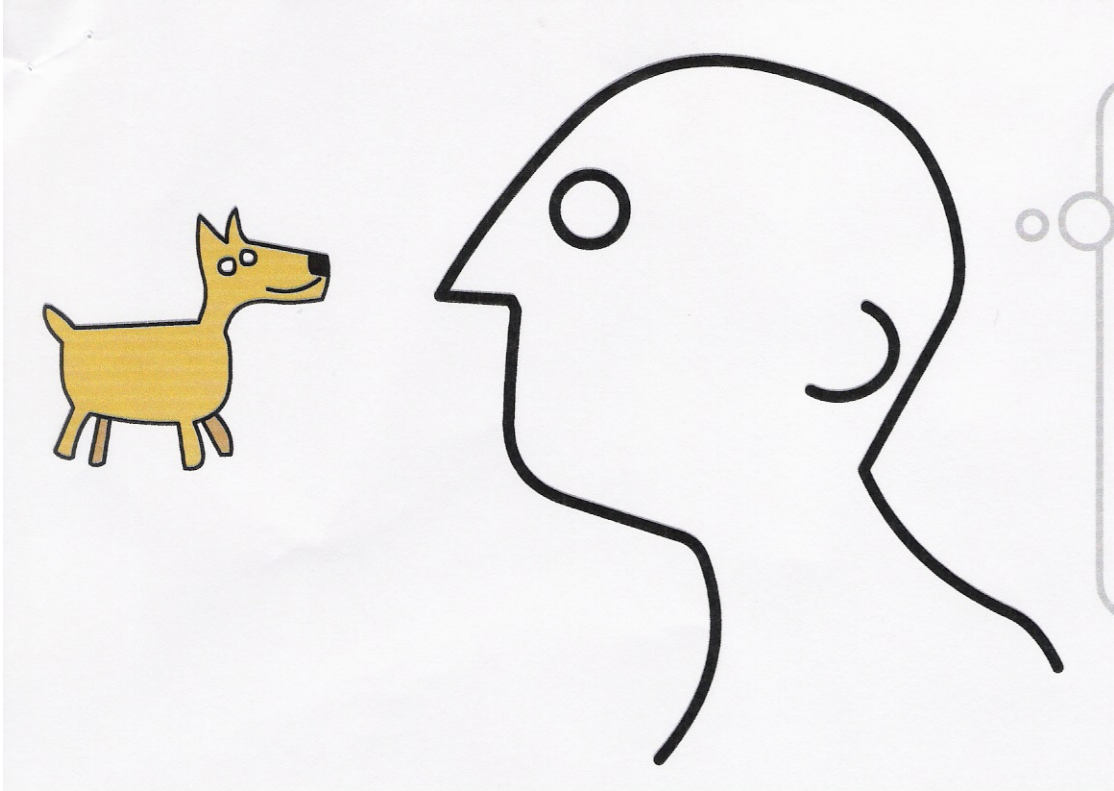
badan



Empat kaki








recognition-by-components

A third theory of object recognition--recognition-by-components theory--says that we recognize object not assembling its features in the way described in feature-analysis, but by assembling 3-dimensional components called "geons" in a particular way. This theory is similar to feature-analysis, but it differs in the types of parts that are assembled to compose the object.

Tahap pengolahan informasi

- Th 1963 : Sperling
- Th 1970: Rumelhart

Word recognition

- Word superiority effect 
 - Interactive activation model
 - Parallel distributed Processing
 - Neural network model

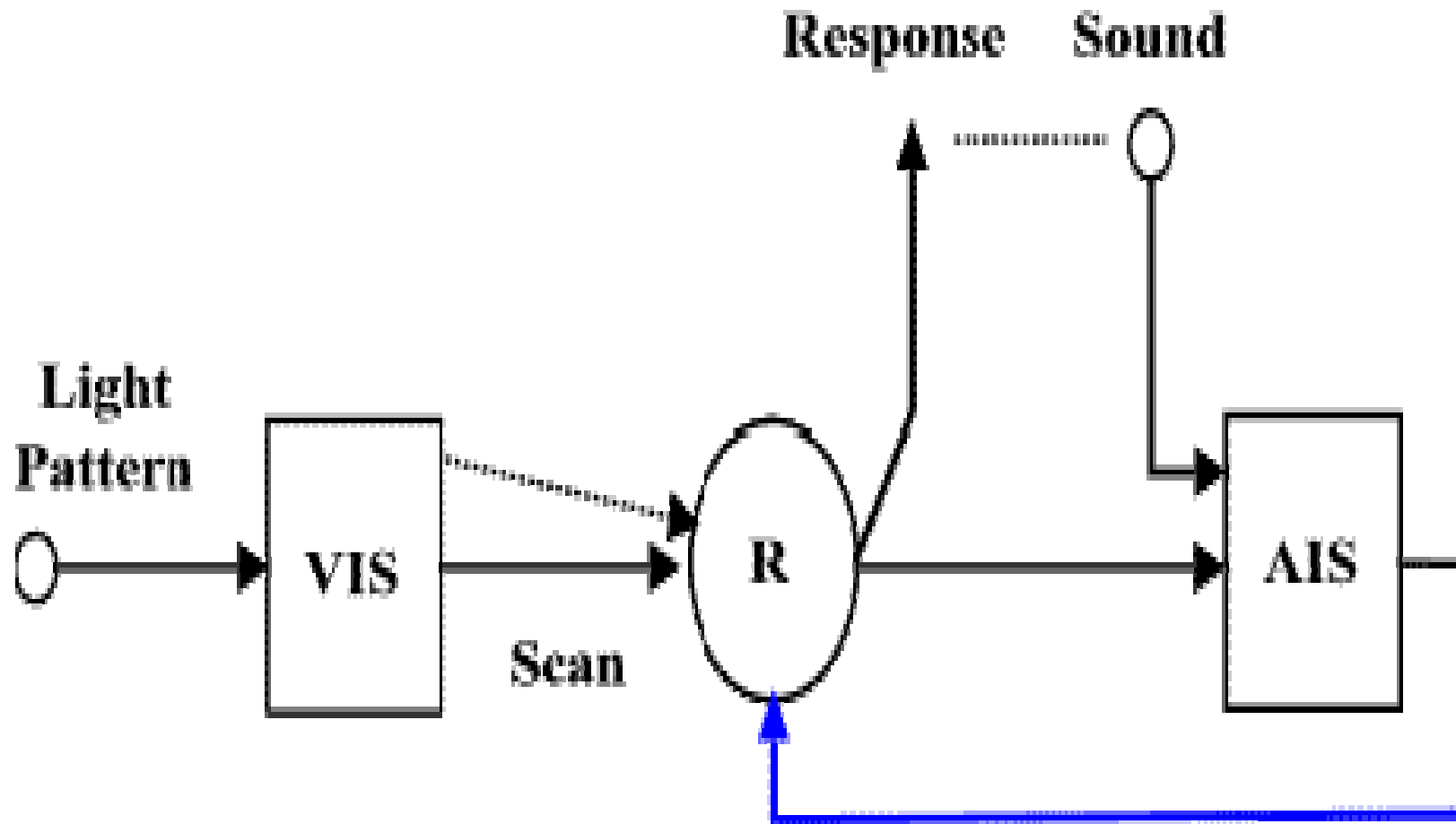
Sperling (1960)

- Menunjukkan suatu matriks yang terdiri atas huruf-huruf dalam waktu yang sangat singkat(50 mili detik)
 - B K T U
Q X N C
F Z W L
- Subjek diminta menyebutkan semua huruf yang dapat diingatnya. ➡ Whole report technique
- Rata-rata dapat mengingat 4.5 huruf

Why ?

- Kemungkinannya :
 - Sistem penyimpanan informasi kapasitasnya terbatas : hanya 4.5 items
 - Informasi di sensory store cepat hilang.
- Sperling menggunakan **Partial Report Technique**
 - Setiap baris diberi suatu nada yang berbeda
 - Ketika nada dibunyikan subjek cukup menyebutkan huruf yang ada di baris tertentu saja
 - Hasil: setiap subjek bisa menyebutkan 3 dari 4 huruf yang ada di setiap baris (total 9 huruf yang diingat)

Sperling's Information processing model



Word superiority effect (Reicher, 1969)

- Fenomena mental, dimana manusia mengenal huruf dalam kata lebih cepat dibandingkan huruf yang tersendiri ataupun dalam non kata. (Percobaan Reicher hal 35)

Bgmn menjelaskan word superiority effect ?

- Interactive activation model (McClelland & Rumelhart, 1981)
- Proses pengolahan informasi visual dalam mengenal huruf berlangsung secara asimultan dalam tiga level;
 - Level fitur
 - Level huruf
 - Level kata

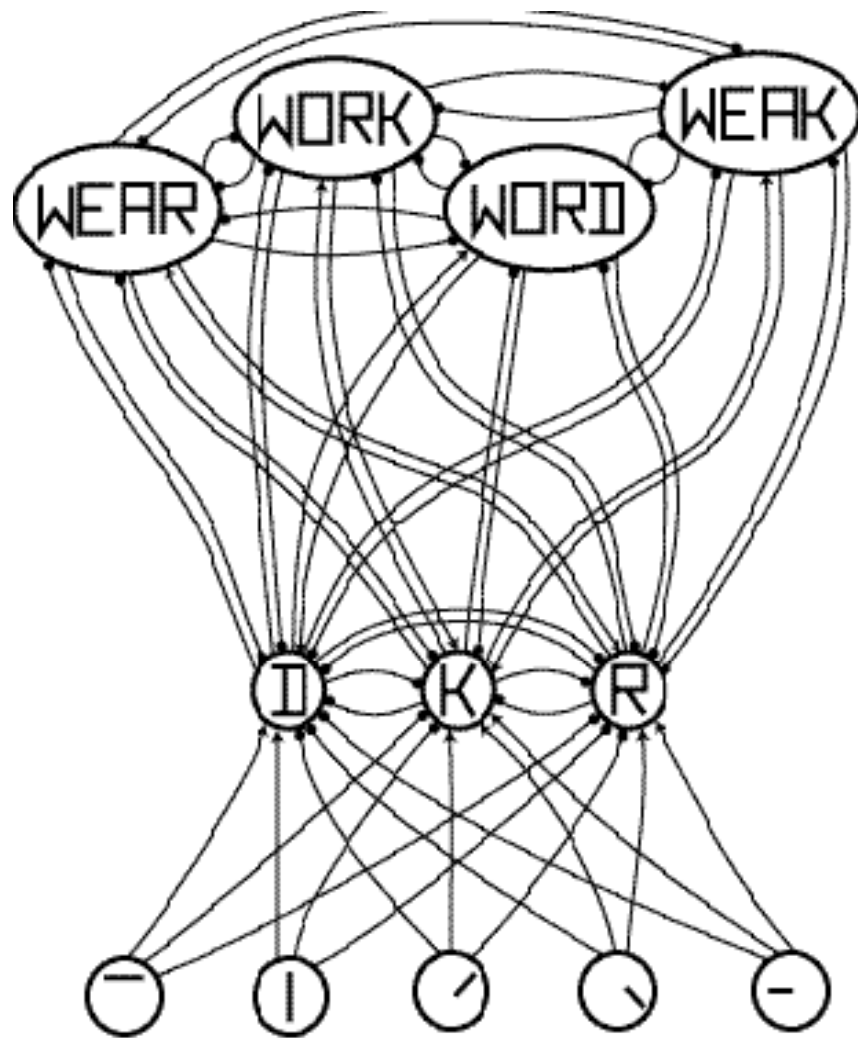


Figure 1. Interactive Activation Network Model
(after McClelland and Rumelhart, 1981).

Neural network model

- Merujuk pada parallel distributed processing, informasi di evaluasi secara paralel dan didistribusi ke seluruh jaringan
- Awalnya istilah **neural network** digunakan untuk menjelaskan suatu jaringan atau sirkuit dari syaraf-syaraf