

E-411 PRMA

LECTURE 20 NEUROPSYCHOLOGICAL ASSESSMENTS

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ARE INTERVIEWS NECESSARY?

NEUROPSYCHOLOGICAL ASSESSMENT

Concerned with evaluating the functioning of the nervous system as it relates to behavior

Concerned with both central and peripheral nervous system

organicity, a mental disorder is linked to a biological cause
(e.g. brain lesion)

Lots of plasticity in brain functioning/recovery and link between organicity and damage are not one-to-one

CONDITIONS PROMPTING EVALUATION

- Referrals from psychologist, general practitioner, neurologist
- No medical basis for impairment (e.g. headaches)
- Look at cognitive response to trauma or chronic conditions
- **hard** vs. **soft** signs

NEUROPSYCHOLOGICAL EVALUATION

purpose - to make inferences about the structural and functional characteristics of the brain by evaluating an individual's behavior in defined stimulus-response situations

May test a myriad of behaviors: visual, auditory, perceptual, problem solving, cognitive processing, sensory

Timing of assessment may be critical to validity

methods - similar as other psychological methods but also including imaging equipment (e.g fMRI)

Imperative to have a strong understanding of biology and neurological functioning

**WHAT WOULD IT MEAN IF SOMEONE
WAS COMPLAINING ABOUT
HEADACHES?**

HISTORY AND CASE STUDY

- Similar methods to counseling/clinical psychologist evaluation
- Medical history of patient and their family
- For children, have they reached developmental milestones
- Demographics and psychological history (e.g. intelligence, personality disorders, etc)
- Type, nature, and severity of issues
- Will want to know the onset of behavior and any changes observed

INTERVIEW AND MENTAL STATUS EXAM

Unlike counseling/clinical, interviews here are more structured

Typically involve rating

Formal exam would be used to screen for impairments and/or disease

Would administer a mental status exam for general understanding of the mental state of the examinee

MENTAL STATUS EXAM

- Appearance, behavior
- Orientation
- Memory
- State of senses and psychomotor abilities
- State of consciousness, affect, mood, personality
- Thought content & processes
- Intelligence, insight, judgment
- Focus on neuropsychological functioning

**WHAT TYPES OF TESTS WOULD WE
WANT TO USE IN
NEUROPSYCHOLOGY?**

GENERAL INTELLIGENCE TESTS

Weschler tests very commonly used in neuropathology

Patterns of scores often indicative of a deficit

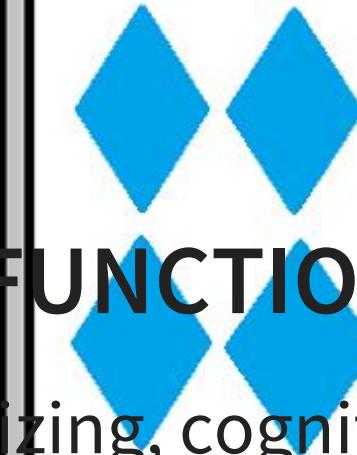
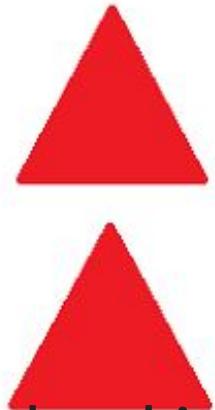
Focus on interpreting pattern of subtest scores (**pattern analysis**)

Other scores devised to assess brain damage (e.g. quotients or ratio scores)

Depending on focus of assessment, may deviate from prescribed testing procedure

ABSTRACT THINKING

- Inability to think in abstract manner indicative of neuropsychological deficit
- Tests elicit abstract thinking in testee administered
 - Weschler similarities test
 - Proverbs test
 - Sorting tests
- Test frontal lobe functioning - concentration, planning, organization, cognitive flexibility, working memory, inhibition of impulsive behavior



EXECUTIVE FUNCTIONING

Involved in planning, organizing, cognitive flexibility, and inhibition of impulses

1

Associated with frontal and prefrontal lobes

2

Associated with, but distinct from, intelligence

3

Believed to be plastic

4

Children in poverty often have low EF



EF TESTS

Peg tapping

Marshmallow test

Lots of other tests (see textbook)

PERCEPTUAL AND MOTOR TEST

- **perceptual** - measure sensory functioning
- **motor** - measure motor skills
- includes tests of color, smell, dexterity, speed, ability, etc.

ISHIHARA TEST

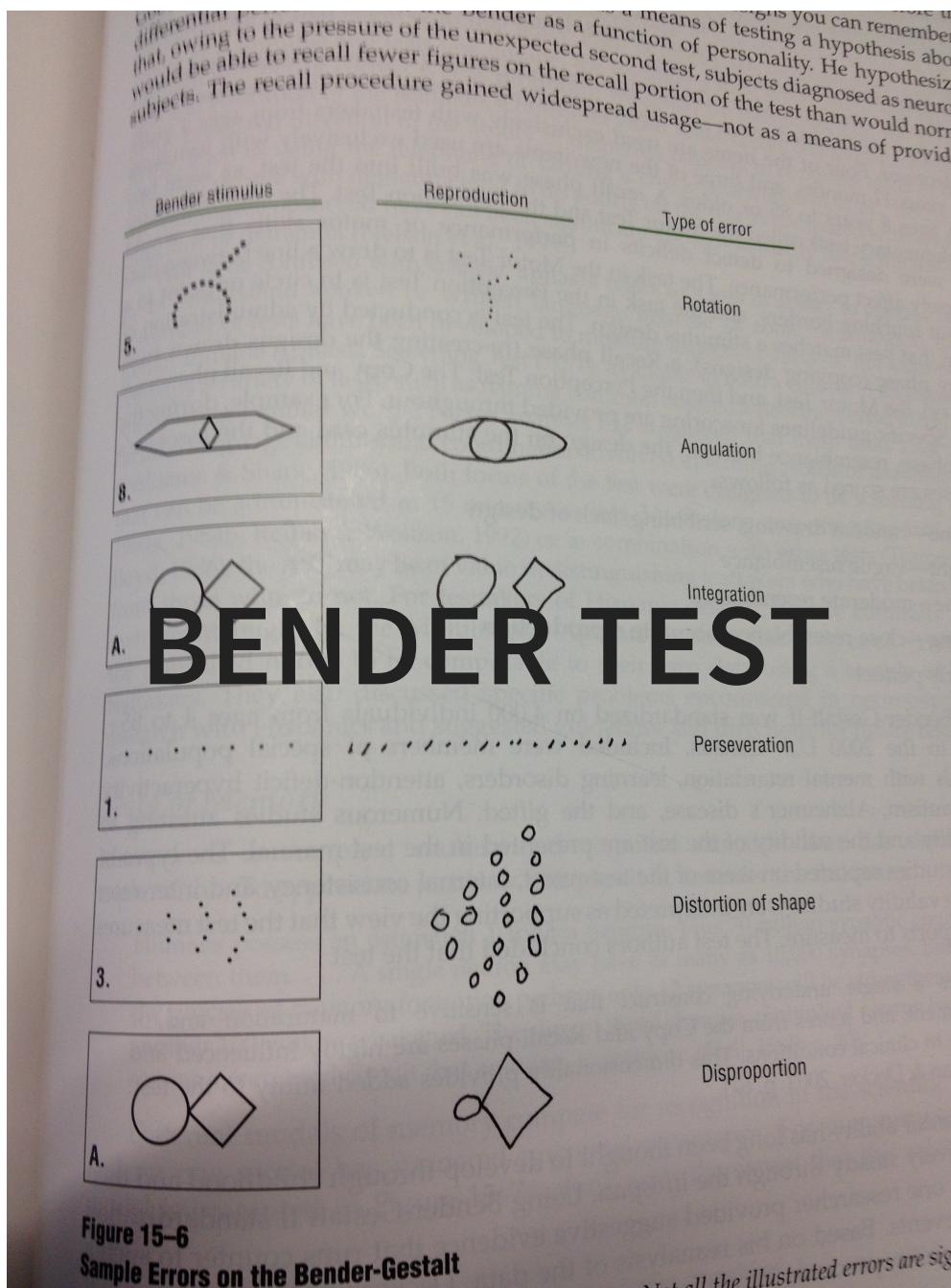


Figure 15–6
Sample Errors on the Bender-Gestalt

TESTS OF VERBAL FUNCTIONING

verbal fluency may be associated with brain injuries or diseases (e.g. dementia)

- **Controlled Word Association Test** - examiners says a letter and examinee says as many words as they can
- Has been used with dementia patients (but can not readily identify people with dementia)

Is someone able to express them self with language
(aphasia)

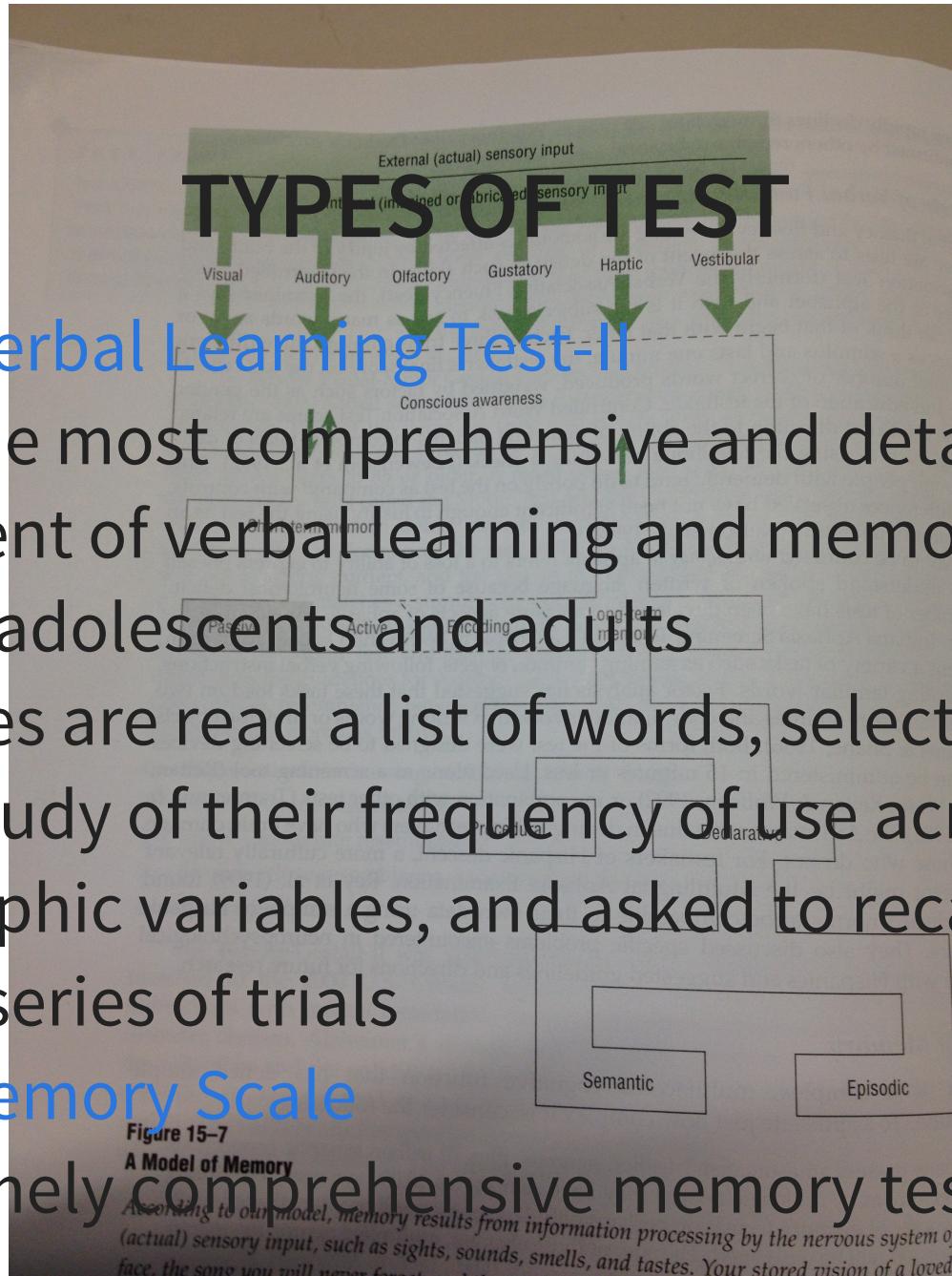
Reitan-Aphasia Screening Tests used to detect aphasia - naming common objects and writing familiar words

Unidimensional? Culturally sensitive?

TESTS OF MEMORY

- Many models of memory
- Memory models include short and long-term memory
- Something perceived may move into short-term memory, back to being aware, back to short-term memory (and so on), and either to long-term memory or could be lost
- Different ways memory is classified in LTM

- California Verbal Learning Test-II
 - Obtain the most comprehensive and detailed assessment of verbal learning and memory available for older adolescents and adults
 - Examinees are read a list of words, selected after careful study of their frequency of use across multiple demographic variables, and asked to recall them across a series of trials
- Wechsler Memory Scale
 - An extremely comprehensive memory test



COUNT NUMBER OF TIMES THEY
PASS THE BALL

**WHY MIGHT WE CONSIDER A
BATTERY OF TESTS?**

WHY MIGHT BE AN ISSUE WITH THIS?

FMRI

- Produces images of the brain, non-invasively, that allow us to monitor the flow of blood (i.e. study function)
- Use fMRI to see how our brain responds to different stimuli
- Diverse uses including studies of mindfulness, prevent disabilities, treating disorders and addictions, studying autism, studying criminals, examining racism, decision-making, memory, and much more



DEAD SALMON REACTS TO PHOTOS
SHOWING DIFFERENT EMOTIONS?



ISSUES WITH FMRI

Often done with small sample sizes, low statistical power,
and lots of statistical testing!

Non-independent statistical tests and corrections are
needed, otherwise dead salmon

Be mindful of practical significance and understand how it
differs from statistical significance