

Psykologisk institutt

Eksamensoppgave i PSY1012/PSYPRO4112 – Kognitiv psykologi I

Faglig kontakt under eksamen: Robert Biegler

Tlf.: 73 59 19 60

Eksamensdato: 14. desember 2015

Eksamenstid (fra-til): 09:00-13:00

Hjelpemiddelkode/Tillatte hjelpemidler: Ingen

Annen informasjon:

Målform/språk: Bokmål

Antall sider: 2

Antall sider vedlegg:

Kontrollert av:

Dato

Sign

Svar på 2 av de 3 spørsmålene:

1. Beskriv noen av de prosessene som ligger til grunn for språkforståelse.
2. Hvilken innvirkning har egenskapene til arbeidsminnet og langtidshukommelsen på hvordan vi løser problemer?
3. Hva er hukommelsestap, og hva forteller det oss om strukturen av hukommelse?
Er hukommelsestap den eneste patologien av hukommelse?

1. Sensorveiledning: Denne besvarelsen kan inneholde informasjon om grunnleggende prosesser for språk, e.g. talepersepsjon, hvordan konteksten påvirker språkforståelse, bottom-up og top-down prosesser, språk og tanke, og språk i sosial kontekst. Dette er eksempler på hva studentene kan ha med i en slik oppgave, men det betyr ikke at de må ha med så mange som her nevnes. Det kan være få begreper som presenteres, men at det da går mer i dybden.

2. Sensorveiledning

The components of working memory are the central executive, visuo-spatial sketchpad, phonological loop and episodic buffer. Phonological loop and visuo-spatial sketchpad process auditory (especially language) and visual information respectively. The episodic buffer binds together information in different modalities. All of these components have capacity to hold and process only a small number of chunks of information. What exactly constitutes a chunk depends on experience, and thus information in long-term memory. For example, experts typically can chunk together several steps of a problem-solving procedure, and so reduce their working memory load when solving a problem in their areas of expertise.

Relevant properties of long-term memory are that it stores information in a meaning-based as well as a visual code, that it efficiently retrieves relevant information, and that it is good at pattern matching. Efficient retrieval of relevant information combined with limited capacity for information processing should bias people towards reasoning based on past experience and pattern matching. A suitable example would be that expert chess players do not differ from less expert players in short-term memory capacity when remembering random arrangements of chess pieces. However, when remembering positions from real games, the more expert players remember larger chunks, indicating that they recognize familiar patterns. The quality of expert players' looking ahead in a game is not much affected by time constraint, again indicating reliance more on pattern matching than brute force calculation. This is only an example of a possible approach, not something that is required. Another example (not in the pensum, but presented in the lecture) would be that when people are to evaluate the logical validity of all four combinations of believable, unbelievable, valid and invalid syllogisms, they accept c. 90% of believable syllogisms, regardless of validity. Of the unbelievable syllogisms, they reject 90% of the invalid and 50% of the valid. It seems people simply do not bother to reason logically when conclusions are believable. This may be interpreted as a sign of poor reasoning, or else a strategy of efficiently focusing mental effort on cases that conflict with prior knowledge. What makes such a strategy efficient is that long-term memory is good at retrieving relevant information, while working memory has very limited capacity. Checking even what is believable would waste precious resources. What I want students to understand is that some apparent weaknesses may be seen as working with the strengths of human cognition and avoiding the weaknesses.

3. Sensorveiledning

Amnesia is a severe loss of declarative memory. Retrograde amnesia is the loss of memory from before the event that caused amnesia. Anterograde amnesia is an impairment in the acquisition of new information. Retrograde without anterograde amnesia can be caused by concussion. Anterograde amnesia may be caused by damage to the hippocampus and other medial temporal lobe structures.

Study of preserved memory in amnesic patients led to an attempt to characterise common features of spared capacities. This led to the distinction between declarative or explicit and non-declarative, procedural or implicit memory. As a consequence, an amnesic patient may learn a new motor skill, such as playing table tennis, without remembering ever having practiced it. Sternberg does not go into the distinctions between the different forms of non-declarative memory, so if a student is aware of that, that is a bonus.

Students may not classify agnosias as memory impairments because they are mentioned in a chapter on perception. Those who do may realise that agnosias come in many different forms. Thus impairments in the semantic part of declarative memory can be specific to sensory modality and to specific classes of items, while there is no report of such specificity regarding impairments of episodic memory.

Likewise, aphasia is mentioned in the context of language, so students may not realise that aphasia can be seen as impairments in semantic memory.

The chapter on memory does mention that Alzheimer's disease involves the loss of both episodic and semantic memory. Although intellectual impairments are mentioned, the book does not clearly link those to the central executive component of working memory. Students who mention that go beyond the penum.