

Sentence Completion Test

A sentence completion test entails filling in one more missing words in a sentence. A simple example is:

She poured him a cup of tea and offered a slice of ____.

The ability to choose semantically appropriate completions is taken to indicate degree of linguistic ability. Alternative versions of the test provide two missing words in order to test understanding of causal or logical relationships, or a full paragraph with multiple missing words.

Sentence completion, or 'cloze' tests are widely used in educational testing, e.g. as part of the American SAT and Graduate Record Exams, and of the Test of English as a Foreign Language. In testing, students are given a range of possible word completions. All are syntactically sound but only one is semantically appropriate. The validity of completion as a measure of linguistic ability depends on the assumption that understanding the meaning of one term in a natural language requires a supporting structure of many other semantically related terms. Consequently, subjects cannot train to the test because reliable completion performance depends on the degree to which the whole structure is already in place.

In psychological research subjects are seldom offered multiple completions, but rather allowed to complete the sentence as they think appropriate. The dependent variable of interest is then their choice of word, or the time taken to complete the sentence.

Psychological applications divide into two types, depending on whether completions are used as an indirect measure of a non-linguistic psychological state, e.g. an aspect of personality, or as a tool for investigating language processing itself, e.g. in testing theories of sentence comprehension. In non-linguistic work, completions provide information about a subject's psychological state only when compared to previously collected completion norms that have been validated for measuring that state.

In psycholinguistics, sentence completion is used in conjunction with free association and priming tasks to quantify otherwise inaccessible and unconscious linguistic expectations (Garman, 1990). In an association task the subject is given a single word cue and must generate all the words that come to mind. Associated word probabilities are well matched the conditional probability, measured over large text corpora, of each associate occurring among the next few words after the cue. Priming refers to the reduction in time taken to recognize a word caused by brief prior presentation of a semantically related word, compared to a semantically unrelated one. Priming effects are well predicted by the level of substitutability between the word that is

recognized and the prime word. Substitutability is a measure of how easily one word can be replaced with another in context without making the resulting sentences semantically incongruous, and can be quantified by measuring distributional similarity, the extent to which words share verbal context (Redington and Chater, 1997). Substitutability accounts of meaning are inherently relational and formalize the testing assumption that understanding meaning presupposes substantial surrounding linguistic structure (Cruse, 1986).

Physically, unrelated prime words in the priming task, and incongruous substitutions into sentential contexts trigger large N400 components in brain event-related potentials, shortened gaze duration and decreased reaction times.

Since the association task is a compressed form of sentence completion, and priming results are predicted by a substitutability measure closely related to that tapped by sentence completion, it is likely that sentence completion also depends fundamentally on statistical measures of verbal context. On this view, second language applications of the sentence completion task measure how well subjects have internalized the substitutability intuitions that are generated by the underlying statistical properties of the second language and are a necessary byproduct of learning to speak it.

References

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