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A Research of Underlying Mechanisms on Slips of the Tongue by Chinese Undergraduates

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Abstract. This paper analyzes the internal mechanisms on slips of the tongue in English in view of different types and different language levels regarding the data analysis of Spoken English Corpus of Chinese Learners (SECCL).

1. Introduction

Slips of the tongue are a subconscious departure from the planned expression. Slips are a normal linguistic phenomenon in daily life. The study on slips of the tongue is an essential media to exploit the internal mechanisms of speech and language system. Meanwhile, it possesses practical significance for English learners to boost their oral English degree.

2. Literature Review

2.1 Reviews on the Previous Studies

Foreign studies on slips are of the remote past. The study chiefly targets at types, causes and repair of slips in Mandarin, and the impact of slips on language teaching and so forth and there is a marked inclination to repetition. Previous scholars have made some fruitful strides and inspired later generations, yet the research content is relatively general and not detailed enough in depth.

2.2 On Slips of the Tongue

From the discourse content, errors change semantic meaning, which is called type of slips of the tongue (Gui Shichun, 2000). Carroll (1994) proposed eight categories, namely, shifts, exchanges, anticipations, perseverations, additions, deletions, substitutions, and blends (Carroll, 1999). From different levels of language system and language unit. It can be named as unit type of speech errors, such as, errors of segment, syllable, word, and so on. (Gui Shichun, 2000). This papers focuses on the integration of the above ones.

2.3 Central Theories on Speech Errors

2.3.1 The Freudian Explanation

"Freud's position was that virtually all speech errors were caused by the intrusion of repressed ideas from the unconscious into the one's conscious speech output" (Carroll, 1999: 190).At least two different speech intentions，mutually exclusive，have been existed in the speaker's mind. Usually, the disturber would be held beck and the normal discourse emerges, where areas, when the disturber is predominant, the subconscious thinking will be reflected in the form of slips (Carroll, 1999).

2.3.2 Theory of Sonority Scale

Sonority is the resonance of a sound in relation to other sounds. Meringe & Mayer reveals that the sound with high degree of sonority interferes with that of low degree of sonority (Liu Tian，2007). The relative sonority of different phones from the most sonorous to the least sonorous is: low (open) vowels, mid vowels, high (close) vowels/ glides, flaps, laterals, nasals, voiced fricatives, voiceless fricatives, voiced plosives, voiceless plosives, and complex plosives (Burquest & Payne, 1993). Selkirk (1984) indicates the sonority scale in English from lowest to highest is: [p t k] [b d g] [f θ] [v ð z] [s] [m n] [l] [r] [i u] [e o] [a].

2.3.3 Psycholinguistic Viewpoints
2.3.3.1 Principle of Cognitive Economy

"Cognitive economy generally refers to the combined simplicity and relevance of a categorization scheme or representation". (David, 2002: 80). The core of cognitive economy is to obtain maximum message via least effort. Representations are stored in the mental lexicon systemically. Words stored in the same semantic field and phonemes in distinctive features pave the way for the shortcut of the brain, causing the laziness of thinking, leading to mistaken on-line between related representation, preventing the right extraction towards the target.

2.3.3.2 Spreading Activation System

In the mental lexicon, spreading activation is regarded as an effective search model. Concepts, either by excitatory or by inhibitory connections, are linked to each other in the complex interrelated network. Dell and Reich (1980) proposed 8 elements: activation, spreading, summation, decay, noise, signaling, satisfaction, competition and rate. Usually, words experience casual choice for speech production. When it is planned to articulate a word, all the potential phonemes about the word start to be assigned to every slot in a short-term working buffer waiting for activation. As articulation draws near, these signals are strengthened gradually until the whole word is articulated, which means each phoneme is activated with the strongest strength. The phoneme for the next syllable has also been place in the buffer although having weaker strength. If the random-directed noise decreases the activation of the processing one or increases the activation of the coming phoneme or both take place, it's likely to commit slips.

2.3.3.3 Conversion of Speech Intention

A normal adult's speech production goes through 3 mental processes—the generation of speech intention, internal language and external language. Still, it experiences 3 movements respectively, that is, intention generation movement, semantic information processing movement and transformation movement. Usually, the speech production is finished by the basic meaning and added by subordinate meaning at any time. However, due to various elements, verbal ideas undergo continuous stimulation, changing fast. New intention abruptly breaks in the internal language, and the movement of semantic information processing has to repair the new or more significant basic meaning. Whereas, the external language being processed has little time for change. The residue is slips.

2.3.3.4 Impact of Cognition

To perceive, understand, internalize, store, retrieve, and utilize information, cognition plays the important part for human. To this degree, it is equal to the language processing system, which views sensory memory, working memory, permanent memory and a set of control processes as general features of human cognitive functioning (Carroll, 1999). Cognition is the result of exchange between the present external stimulation and internal mechanisms.

Working memory is a temporary memory buffer where storage and processing functions executes simultaneously and competes with each other for the limited capacity. The increase of cognitive load will tax working memory. The excess message can't enter into the more complex and more advanced region for further processing, which reveals it can't be fitted in the long-term memory. So, it can't be put into frame of knowledge base and cognitive structure for future use. Slips will emerge in language performance.

2.3.4 Impact of Context

Experimental studies have pointed out that at any time context could stimulate the proper meaning of confusing words in context in a faster and more accurate way (Mei lilan, & Long Shaoyun, 2006). The brain is very active when articulating, building heaps of fine connections with the surroundings. A trace of tiny sound sometimes can activate the emergence of new content. It is the content that acts as the vehicle for the production of slips.

3.   Research Methodology

The present study employs quantitative and qualitative methods. The corpus is from SECCL (Spoken English Corpus of Chinese Learners), which is one of the two biggest learner's spoken

corpora until now in China. (Wen, Wang & Liang, 2005). SECCL, a sub-corpus of SWECCL (Spoken and Written English Corpus of Chinese Learners), consists of the transcriptions of National Oral English Test for Second-year English Majors from 1996 to 2002, having 1,460,042 words. It reflects the intermediate level of oral English of Chinese English majors. It reaches a total of 34 groups and 1,148 recordings. It has both the digital sounds and transcriptions of the speech about each group, in according to different test years and test types. Here, 2 groups respectively under the year of 2001 and 2002 are learned, with the recordings of 140 in total. This paper employs the software of Concordance.

4. Results and Discussion

4.1 Results

Table 1. The number of Errors in TEM-4 Oral Test under 2001 and 2002

Types	Number in 2001	Number in 2002	Total
Shifts	43	61	104
Exchanges	62	54	116
0nticipations	480	540	1020
Perseverations	520	699	1219
Additions	271	289	560
Deletions	643	870	1513
Substitutions	1038	1261	2299
Blends	67	74	141
Coexistences	63	64	125

4.2 Discussions

Table 2. An Analysis of Internal Mechanisms of Each Error Type

Types	Mechanisms
shifts	competition between representations
exchanges	competition between representations
anticipations	conversion of speech intention competition between representations theory of sonority scale
perseverations	competition between representations theory of sonority scale theory of limited cognitive capacity principle of cognitive economy
additions	competition between representations theory of limited cognitive capacity principle of cognitive economy impact of context
deletions	conversion of speech intention competition between representations theory of sonority scale theory of limited cognitive capacity principle of cognitive economy
substitutions	competition between representations theory of sonority scale theory of limited cognitive capacity principle of cognitive economy Impact of context.
blends	competition between representations Impact of context.
coexistences	conversion of speech intention Competition between representations.

Shifts: the study indicates flexible affixes, the output phoneme, and adjacency between places of articulation reflecting the cognitive economy can all result in the imbalance of power, engendering slips of shifts.

Exchanges: the study indicates competition between representations may exist in either positional level or functional level, leading to slips of exchanges.

Anticipations: the study reveals speech intention changes when examinees plan to supplement, emphasize, and explain the processing information. Adjacency between places of articulation and semantic focus cause competition between representations; sounds with higher degree of sonority scale are inclined to articulate in advance. All these factors result in slips of anticipations.

Perseverations: the study indicates sounds with high sonority scale are given a perseverating place; vigorous resonance of the output could cause the shift of activation strength; buffer in thought and language units with the wrong acquisition expose the limited cognitive capacity; phonemes bearing similar resemblance and representations in the same semantic field contribute to cognitive economy. All these elements result in slips of perseverations.

Additions: the study indicates competition between the candidates and powerful resonance of the output create competition between representations; word-selection disorder in one semantic field and buffer in thought reveal limited cognitive capacity; context arouses new details; adjacency between places of articulation yields the short-cut in cognition. All these elements contribute to slips of additions.

Deletions: the study indicates speech intention changes when testees plan to change expression, delete the original content or supplement new materials resulting in slip of deletions. Meanwhile, deletions also is derived from limited cognition, competition between representations, sounds with low level of sonority scale and articulatory resemblance.

Substitutions: the study indicates stimuli of related context, strong competition between potential candidates, false activation in the same semantic field, limitation of one's own knowledge and articulatory resemblance all results in slips of substitutions.

Blends: the study indicates candidates are given equal amount of activation in some cases, they only could mix up due to fixed length for the given slot, resulting in slips of blends.

Coexistences

Jiang Meiyu (2001) once put forward slips of coexistences. The competitive candidates, in tandem, is blurt out, which means the two components exist side by side. Chinese undergraduates also commit such slips. The study indicates when the two competitive candidates have equal activation amount or the primary meaning changes, the external language could not wait for transformation, contributing to slips of coexistences. One outstanding feature is that either of two components is qualified for the semantic-syntactic structure.

5. Conclusion

(1) Slips of the tongue prevail among Chinese undergraduates despite their English degree. The number of committed slips is unevenly distributed on the basis of data statistics. Substitutions and deletions gain the maximum, Shifts and exchanges the minimum, while others are in between.

(2) The intrinsic mechanisms can be divided into 6 factors: competitions between representations, conversion of speech intension, theory of limited cognitive capacity, theory of sonority scale, principle of cognitive economy and impact of context. Additionally, competition between representations is the origin of all slips, further consolidating the vital role of spreading activation model.

(3) The types of slips and the mechanisms have no one-to-one correspondence. The same mechanism probably is the root for several types. Similarly, one type of slips has different internal mechanisms.

(4) Slips of coexistences is also existent for slips in English as the situation in Mandarin Chinese. A fine discrepancy can be found between coexistences and blends on mechanisms. For coexistence, the candidate impacted by context isn't qualified for the slot, while either of the candidates by competition can slot in. For blends, either of the competitive candidates can fill in the slot.

(5) Once again slips exhibits the open-minded feature of mental lexicon. The lexicon conducts a sustained interaction of information with the outside world, which reveals it is a constantly developing and updated system. Then, it owns the susceptible feature. Even a minor hint far away exhibits the enormous strength to trigger off the connection with the processed target, engendering slips. Thirdly, the lexicon undergoes adaption all the while.

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