

When a speaker decides to express what they want to say, there are several stages that the speaker must go through (e.g., Levelt, 1989). Coercion or Metonymy would be good examples: a speaker must choose between a non-coerced (1-a) or non-metonymic form (2-a), and a coerced (1-b) or metonymic form (2-b) that can express the same meaning.

- (1) a. The singer began drinking the champagne.
- b. The singer began the champagne.
- (2) a. The student bought Steven King's book.
- b. The student bought Steven King.

How does the speaker choose between these options? This study investigates how the speaker chooses such alternatives and uses this information to determine how conceptual information is converted into grammatical structures during sentence production.

The literature on sentence production has investigated how the speaker repeats the same syntactic structure (called structural priming, Bock 1986; Pickering & Branigan 1998), and how this phenomenon is influenced by the repetition of the same words or syntactic forms (Levelt et al., 1999). These studies have shown the mechanisms by which the speaker uses lexical and syntactic information when they formulate grammatical structure. However, there are many other aspects of the process that the speaker must go through. For instance, when the speaker expresses the message, sometimes one entity means the entity as a whole (as in (1-a) and (2-b)) or more than the meaning of the entity (as in (1-b) and (2-b)). How does the speaker produce the missing structures instead of the full-form structures?

When the speaker expresses the missing structure, these can be interpreted as either *The student began the champagne* or *The student began drinking the champagne*, *Steven King* or *Steven King's book*. Thus, a semantic representation is assumed to have both coerced or metonymic, and non-coerced or non-metonymic. Similarly, syntactic representation also has two representations: predicate or object only, or noun only, or noun's noun. Thus, the same semantic structure can have two different representations.

How are these semantic and syntactic representations mapped during production? Research on semantic-to-syntactic mapping in language production suggests that this procedure influences the conceptual (semantic) representation of an underlying message. In the past, many studies have indicated that conceptual factors such as animacy (McDonald et al., 1993; Tanaka et al., 2011), concreteness (Bock and Warren 1985), prototypicality (Kelly, Bock and Keil 1986), saliency (Prat-Sala and Branigan, 2000) influence the production of syntactic structure, such as grammatical function assignment (e.g., voice) or word order (e.g., canonical or non-canonical order).

However, these studies mainly focused on how conceptual factors influence surface syntactic structures in production, and there has been little attempt to determine how complicated structures are produced. In this sense, using coercion and metonymy will reveal how conceptual and syntactic representation are mapped in production. This is because, when the speaker produces a coerced or metonymic expression, the speaker needs to access semantic information which is not entirely related to syntactic information, but this process is still lexically determined since the meaning of these sentences depends on each.

Research on language production has proven that the speaker is likely to repeat certain aspects of syntactic structures (structural priming, Bock, 1986). Many studies also found that the conceptual or semantic level of representations can be primed (e.g., Garrod & Anderson 1987). In this sense, it is likely that the elements at conceptual structures are still abstract and not realized in syntactic structure, and these influence the choice of syntactic structure in sentence production, therefore, structural priming at the conceptual level suggests the nature of semantic and syntactic structures in language production.

Thus, using priming would be an extremely useful tool to investigate how we produce the missing structures such as coercion or metonymy. If we compare the production involving a coerced or metonymic

form, and a non-coerced or non-metonymic form, we will be able to find the exact details of mapping from the semantic to the syntactic structure. Thus, the current study reviews one study by Raffray et al. (2014) using coercion, and compares their study with a more recent one by Tanaka (2023) who used metonymy.

Firstly, Raffray et al. (2014) ran a series of picture description experiments and demonstrated that the speaker was more likely to describe a target picture with coerced expressions after describing the prime picture with coerced expressions (e.g., *The singer began the champagne*) than with non-coerced expressions (e.g., *The singer began drinking the champagne*). Secondly, Tanaka (2023), on the other hand, used a sentence recall task in Japanese and showed that the speaker was more likely to recall sentences with metonymic expressions correctly after recalling metonymic expressions (e.g., *The student bought Steven King*) than after recalling non-metonymic (e.g., *The student bought Steven King's book*) or literal expressions (e.g., *The student met Steven King*). Both Raffray et al. and Tanaka also showed that the syntactic structure (a verb phrase containing a verb and a noun, or omitting the verb in coercion, noun only vs. noun's noun in metonymy) was primed when the coerced and metonymic structure was controlled. These results suggest that there are distinct mappings from semantic to syntactic structures when the speaker produces such sentences.

Therefore, the results of these studies indicate that the elements of conceptual structures are still abstract and not realized in syntactic structure, and these influence the choice of syntactic structure in sentence production. To conclude, this study indicates that there are distinct mappings from semantic to syntactic representation in production and discusses how such results are interpreted in terms of the model of language production.

## References

- Bock, J.K. (1986) "Syntactic persistence in language production," *Cognitive Psychology*, 18(3), 355–387. Doi: 10.1016/0010-0285(86)90004-6.
- Bock, K.J. and Warren, R.K. (1985) "Conceptual accessibility and syntactic structure in sentence formulation," *Cognition*, 21(1), 47–67. Doi: 10.1016/0010-0277(85)90023-x.
- Garrod, S. and Anderson, A. (1987) "Saying what you mean in dialogue: A study in conceptual and Semantic Co-ordination," *Cognition*, 27(2), 181–218. Doi: 10.1016/0010-0277(87)90018-7.
- Kelly, M.H., Bock, J.K. and Keil, F.C. (1986) "Prototypicality in a linguistic context: Effects on sentence structure," *Journal of Memory and Language*, 25(1), 59–74. Doi: 10.1016/0749-596x(86)90021-5.
- Levelt, W. J. M. (1989). *Speaking: From intention to articulation*. Cambridge, MA: MIT Press.
- Levelt, W.J., Roelofs, A. and Meyer, A.S. (1999) "A theory of lexical access in speech production," *Behavioral and Brain Sciences*, 22(01). Doi: 10.1017/s0140525x99001776.
- McDonald, J.L., Bock, K. and Kelly, M.H. (1993) "Word and world order: Semantic, phonological, and metrical determinants of serial position," *Cognitive Psychology*, 25(2), 188–230. Doi: 10.1006/cogp.1993.1005.
- Pickering, M.J. and Branigan, H.P. (1998) "The representation of verbs: Evidence from syntactic priming in language production," *Journal of Memory and Language*, 39(4), 633–651. Doi: 10.1006/jmla.1998.2592.
- Prat-Sala, M., Branigan, H.P., (2000). Discourse constraints on syntactic processing in language production: a crosslinguistic study in English and Spanish. *Journal of Memory and Language* 42, 168–182. Doi: doi.org/10.1006/jmla.1999.2668
- Raffray, C.N. Pickering, M.J. Cai, Z.G. and Branigan, H.P. (2014) "The production of coerced expressions: Evidence from priming," *Journal of Memory and Language*, 74, 91–106. Doi: 10.1016/j.jml.2013.09.004.
- Tanaka, M. (2023). How Do We Produce a Metonymic Expression? Evidence from Priming in Japanese. Unpublished manuscript.
- Tanaka, M. N., Branigan, H. P., McLean, J. F., & Pickering, M. J. (2011) "Conceptual influences on word order and voice in sentence production: Evidence from Japanese," *Journal of Memory and Language*, 65(3), 318–330. Doi: 10.1016/j.jml.2011.04.009.