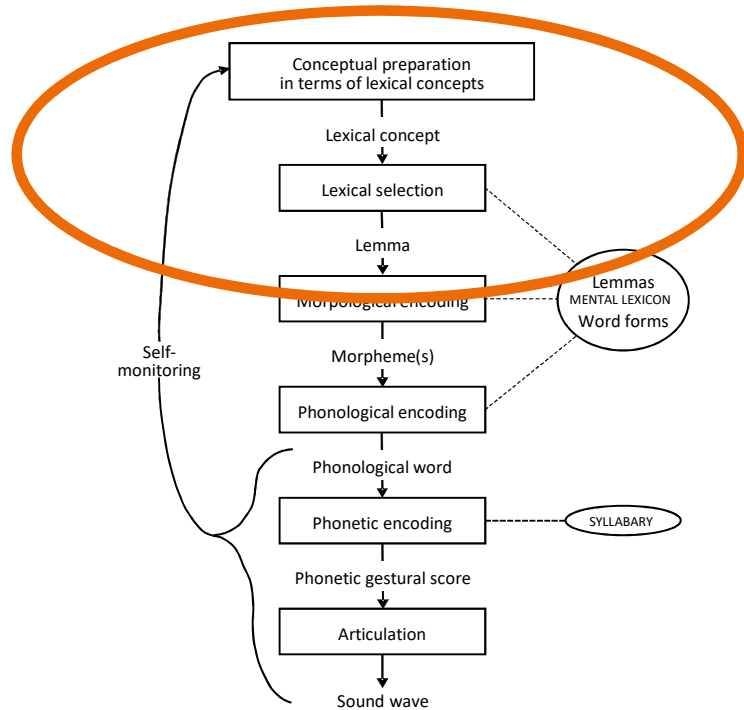


# Syntactic traffic control in English and Dutch

Constantijn van der Burght & Antje Meyer

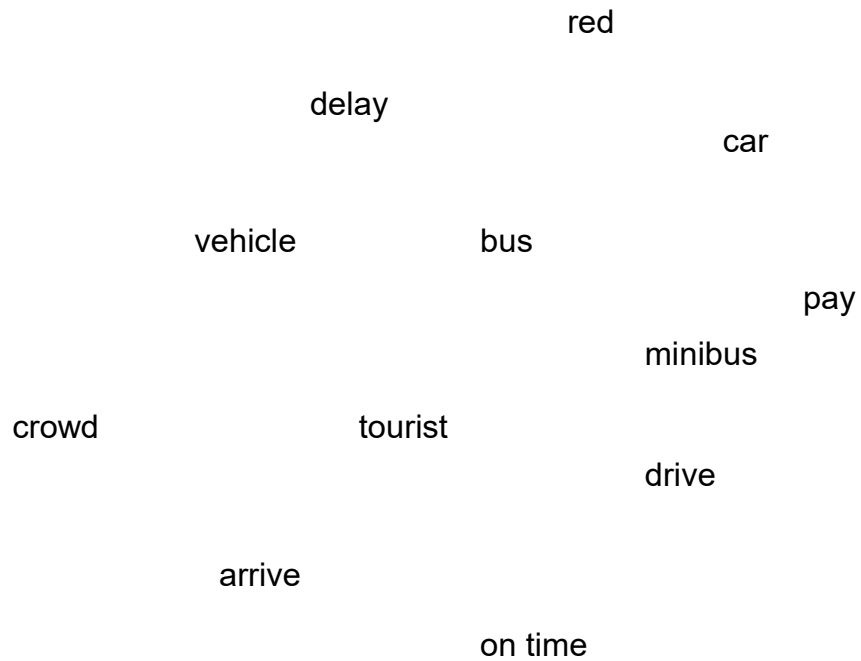


# A working model of lexical access



(Levelt, Roelofs, Meyer, 1999)

# Parts of conceptual network



# Syntactic category constraint on whole-word errors

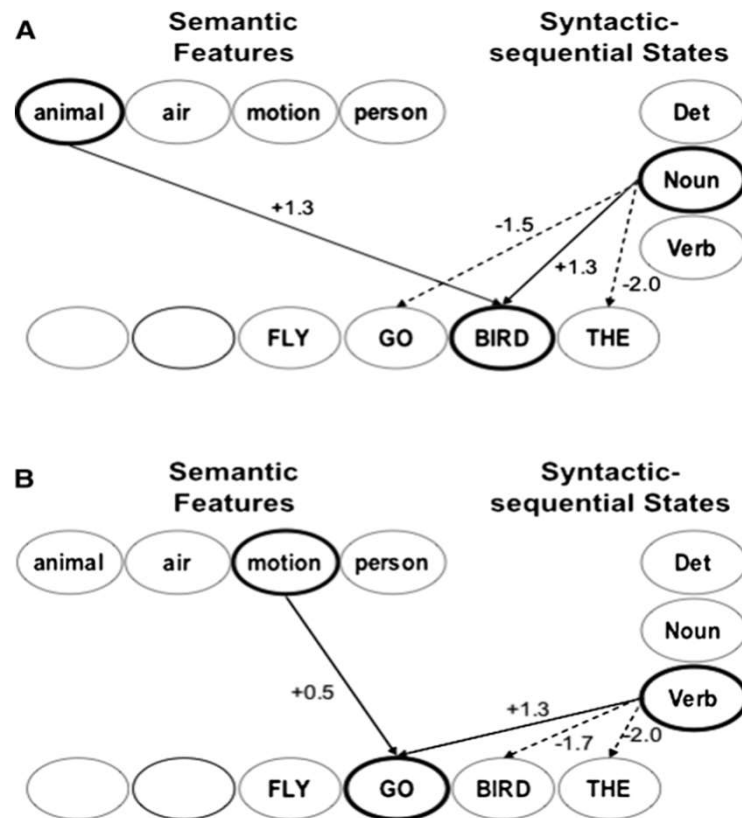
Whole-word and morpheme ordering errors obey syntactic category constraints

- (1) “Tue nich die Sonne in die Butter” (put not the sun in the butter)
- (2) “Mach endlich die Leine an den ... den Hund an die Leine” (put finally the leash on the.. The dog on the leash)

Sound errors do not honour this constraint

- (1) “gruene Kromaten” (green kromatoes)
- (2) “noede Nachbarn” (numb neighbours)

# The traffic cop model of lexical access



Traffic cop gives preference to a noun or a verb



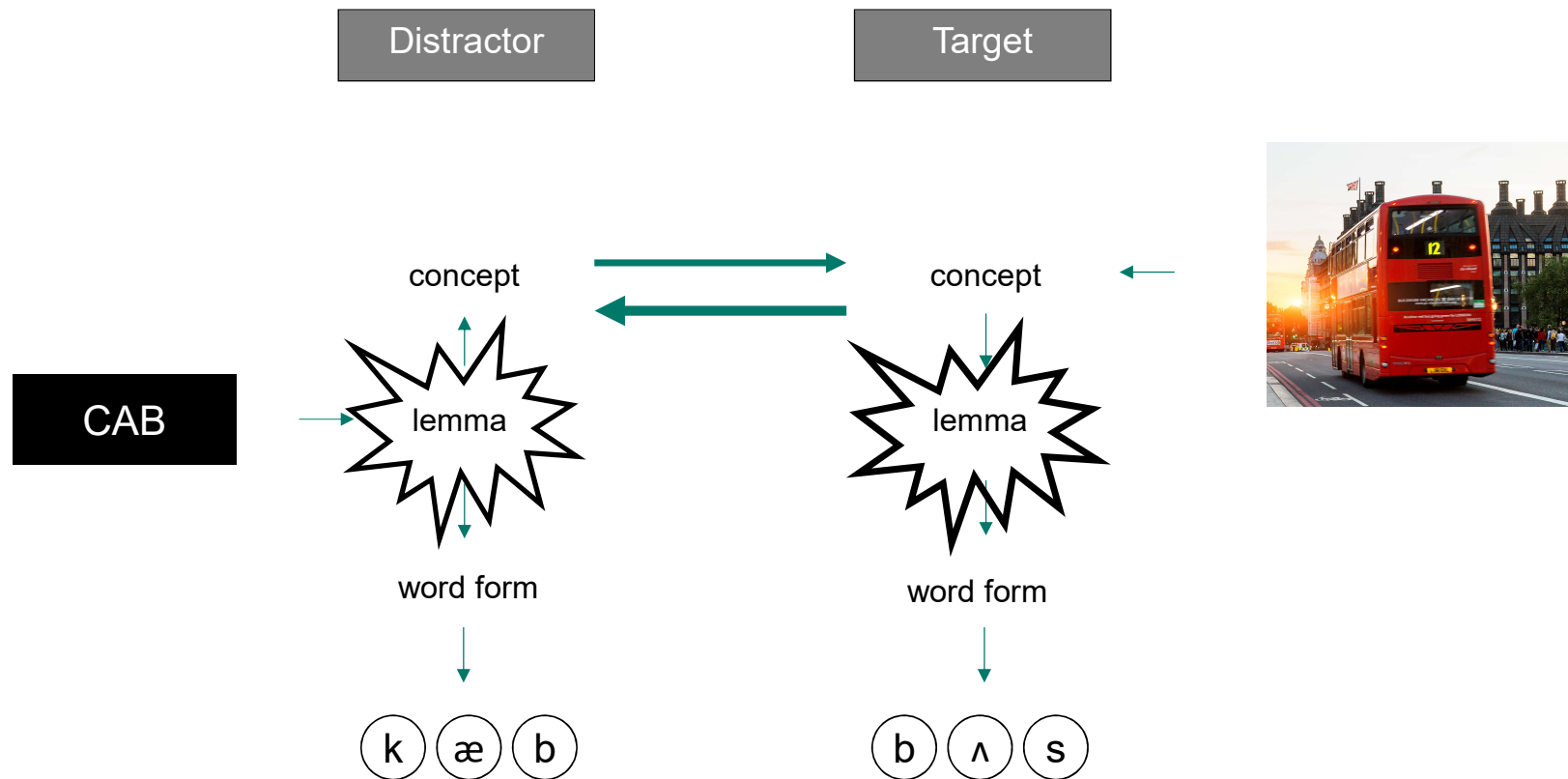
Dell, Oppenheim, Kittredge (2008)

# The picture-word interference paradigm



Bürki et al. (2020)

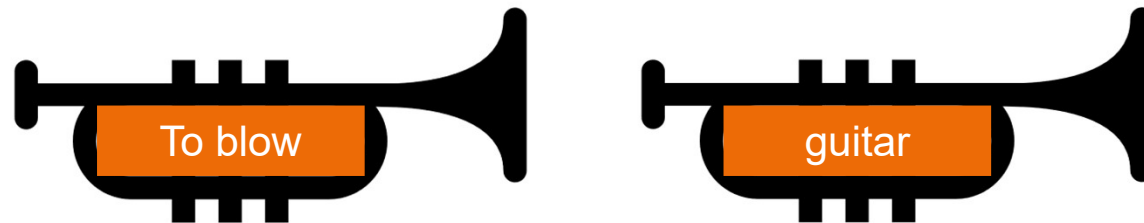
# Origin of the picture-word interference effect



Roelofs (1992)

# Investigating the syntactic constraint

Target and distractors from same or difference word classes

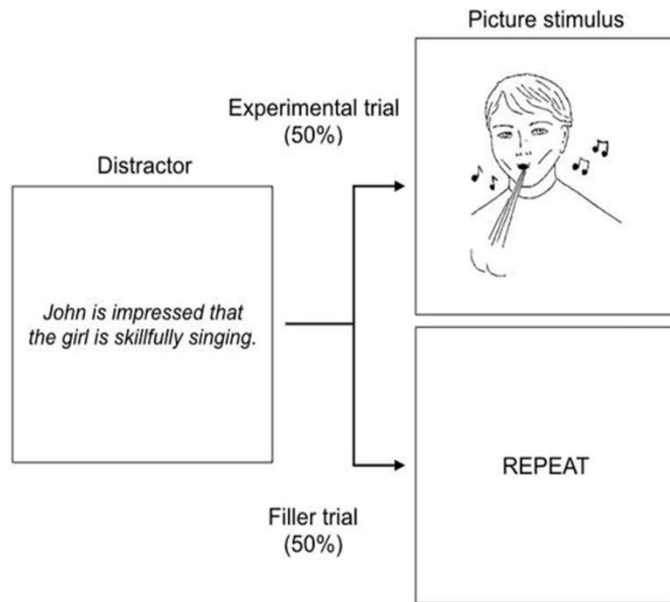


Mahon, 2007



# A syntactic constraint on lexical selection?

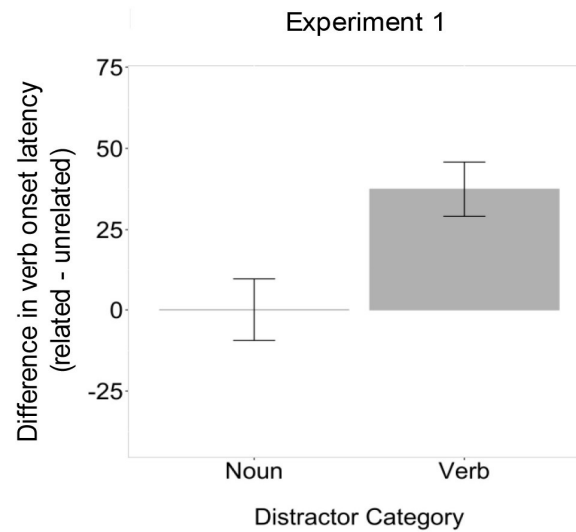
## Momma et al. (2020)



Target: He's whistling (Experiment 1)

# Results Momma et al. (2020)

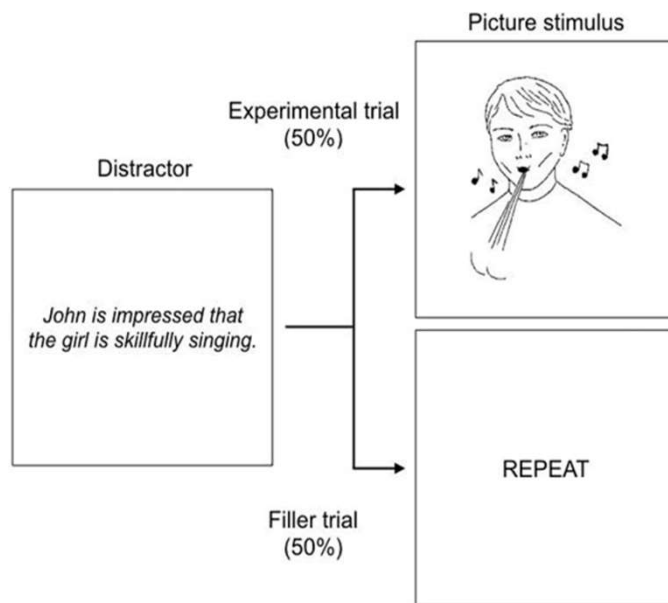
*Verb* production



N=48

Momma et al. (2020) Cognition

# A syntactic constraint on lexical selection? Momma et al. (2020)

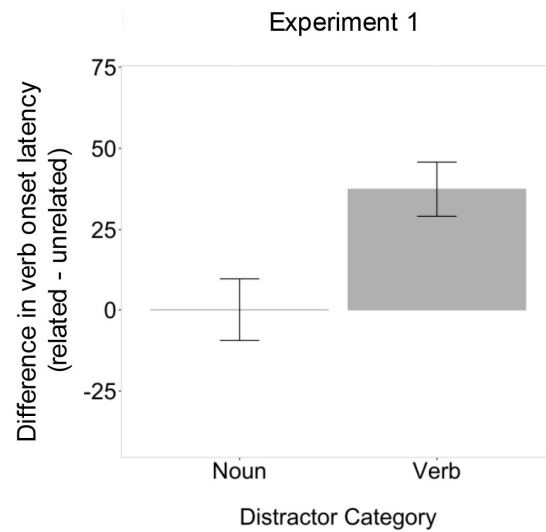


| Distractor relatedness | Distractor category | Distractor sentence                                     | Target picture |
|------------------------|---------------------|---|----------------|
| Related                | Verbal              | John is impressed that the girl is skillfully singing.  |                |
| Related                | Nominal             | John is impressed by the girl's skillful singing.       |                |
| Unrelated              | Verbal              | Mary told the doctor that she is persistently coughing. |                |
| Unrelated              | Nominal             | Mary told the doctor about her persistent coughing.     |                |

Target: His whistling is red. (Experiment 2)

# Results Momma et al. (2020)

*Verb* production



N=48

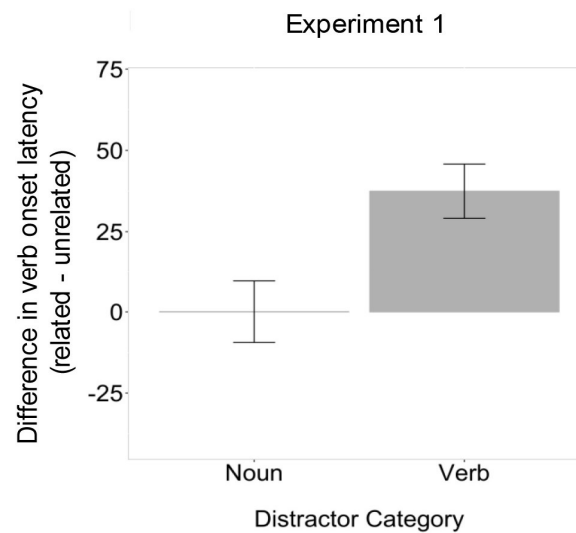
Experiment 2

*Noun* production

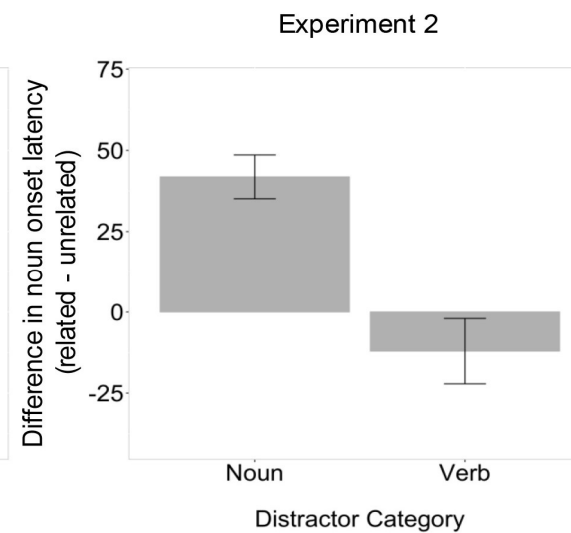
Momma et al. (2020) Cognition

# Results Momma et al. (2020)

*Verb* production



N=48



N=48

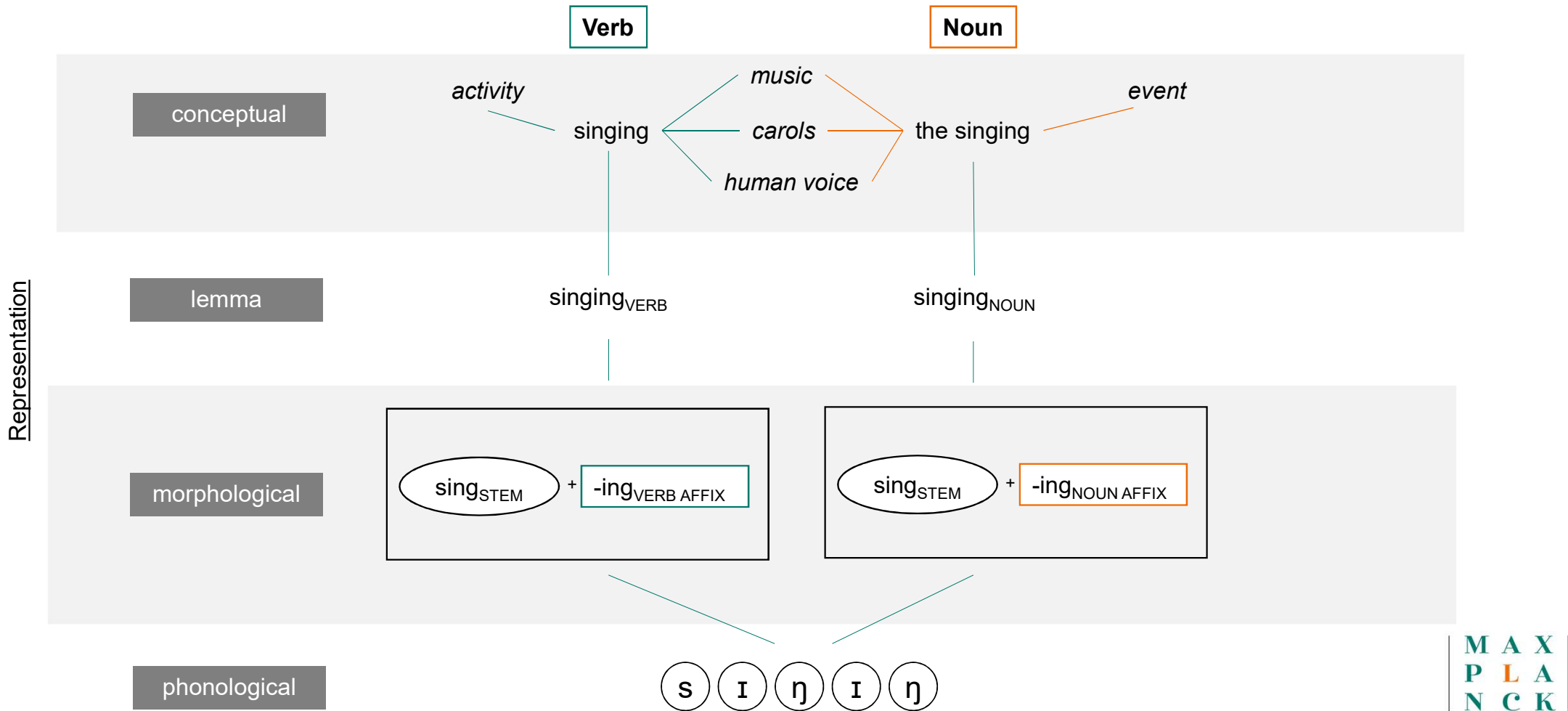
*Noun* production

“The girl is singing” interferes with “He’s whistling”  
 “her beautiful singing” does not interfere.

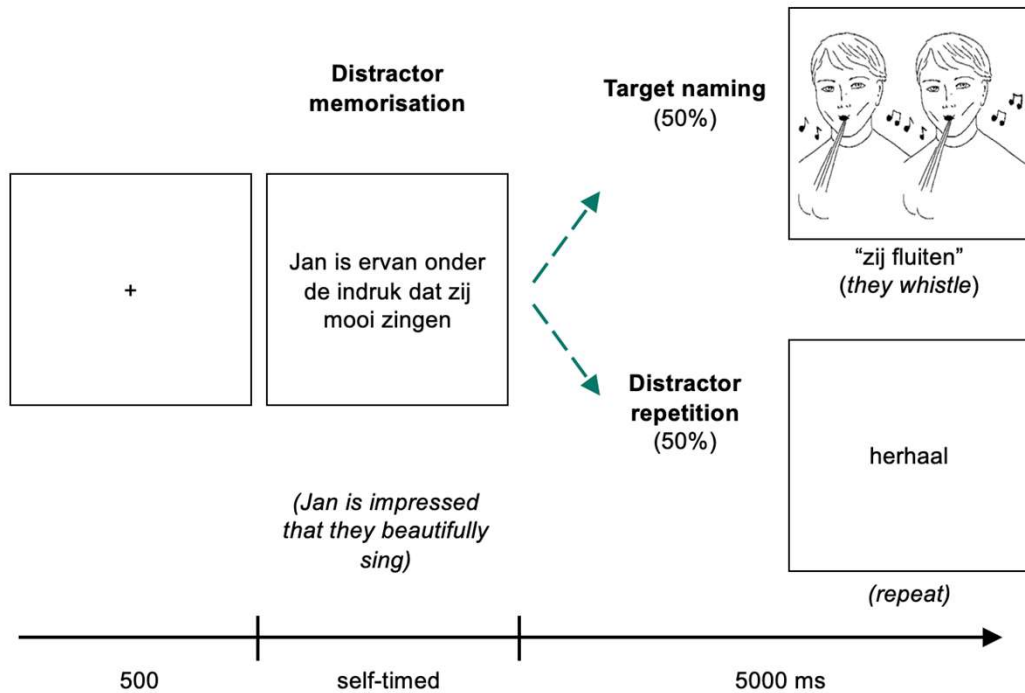
Momma et al. (2020) Cognition



# Representation of English verbs and nominalised verb forms



# Materials of Experiments 1 and 2

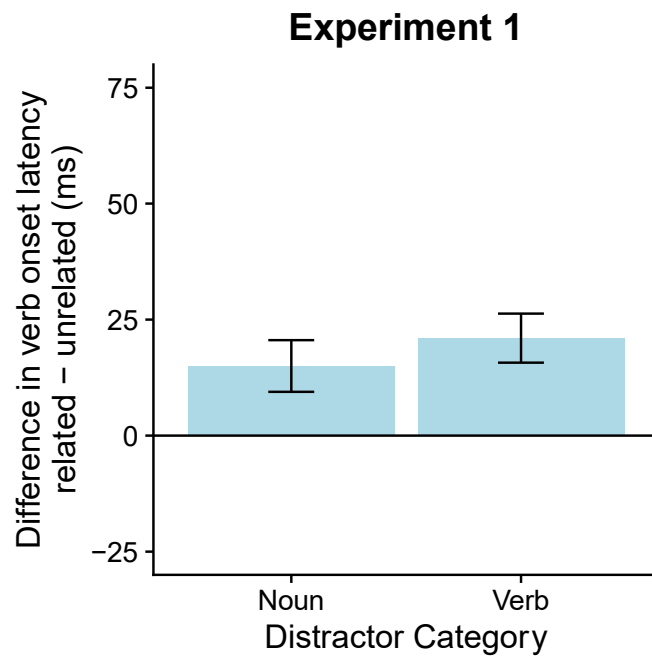


## Distractor sentences

| Relatedness | Cat. | Dutch  |
|-------------|------|--|
| Related     | Verb | ...zij mooi <u>zingen</u><br>(they are beautifully singing)      |
| Related     | Noun | ...hun mooie <u>zingen</u><br>(their beautiful singing)          |
| Unrelated   | Verb | ...zij constant <u>hoesten</u><br>(they are constantly coughing) |
| Unrelated   | Noun | ...hun constante <u>hoesten</u><br>(their constant coughing)     |



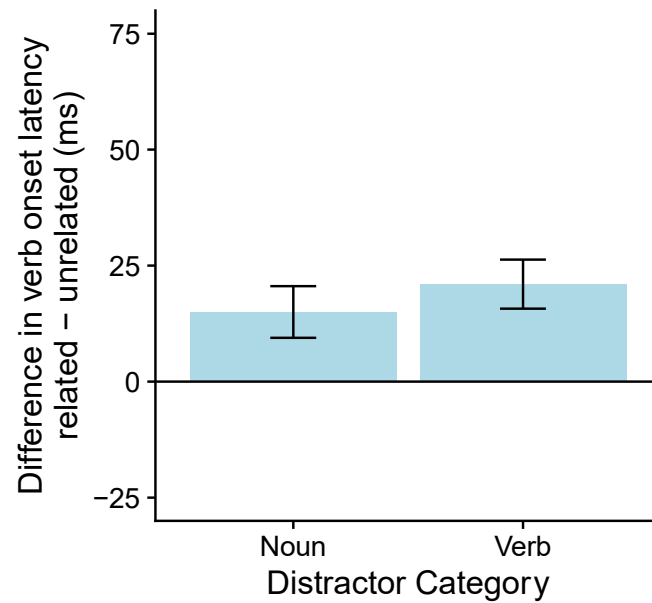
# Results of Dutch replication



N=60

# Results of Dutch replication

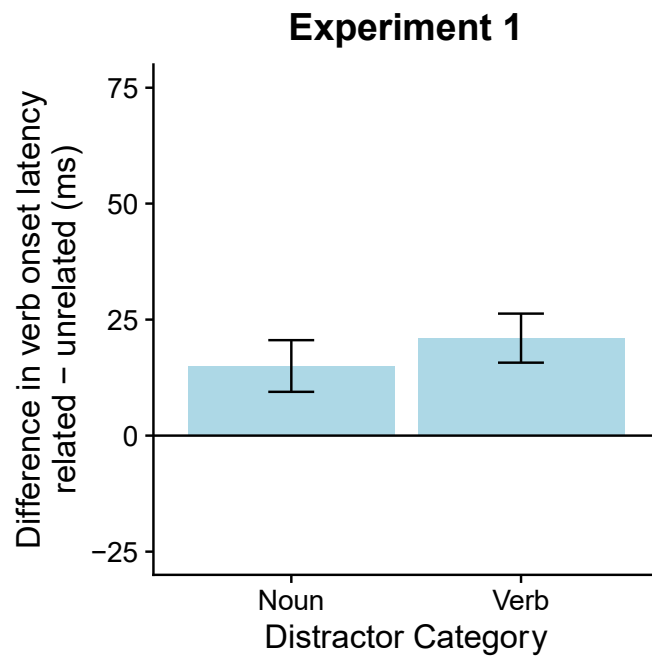
Experiment 1



N=60

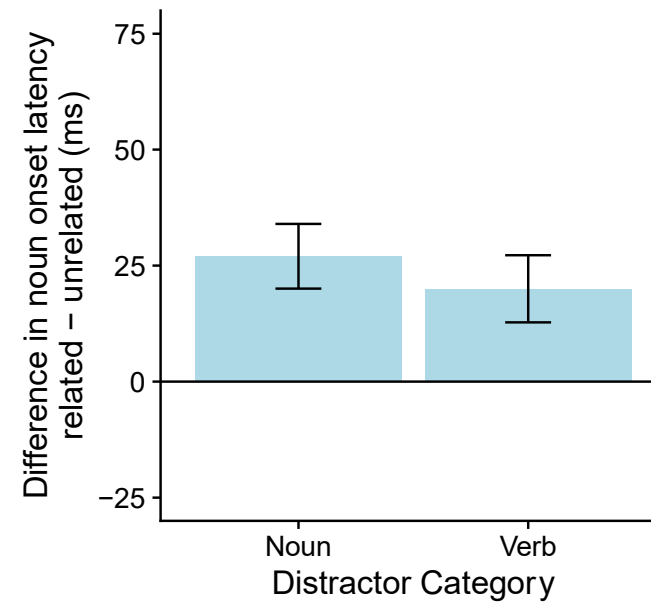


# Results of Dutch replication



N=60

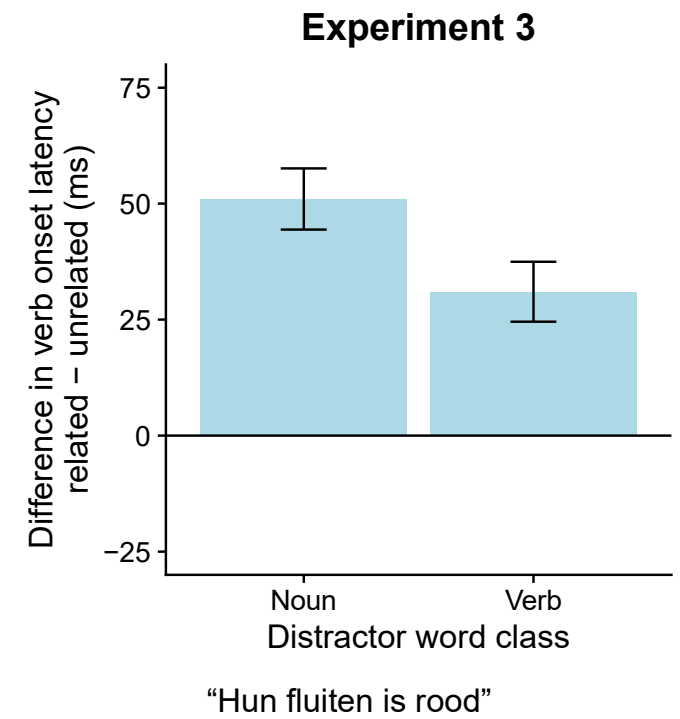
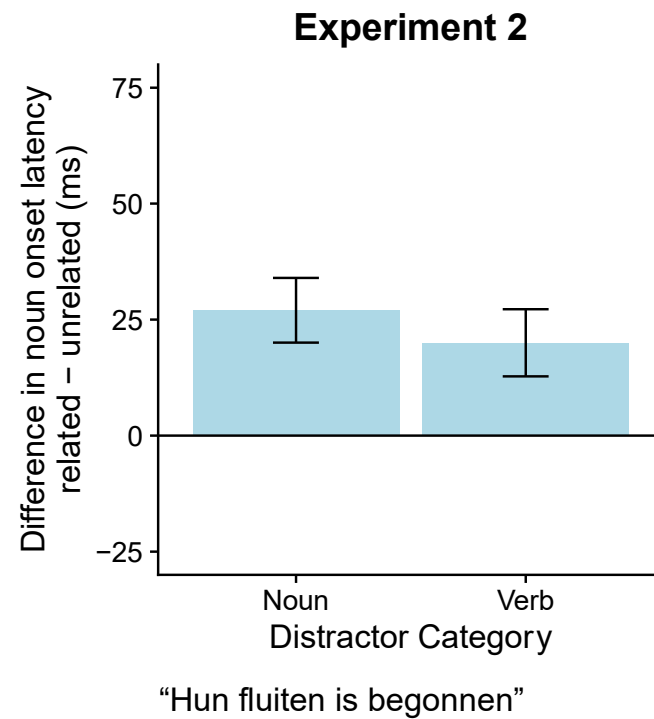
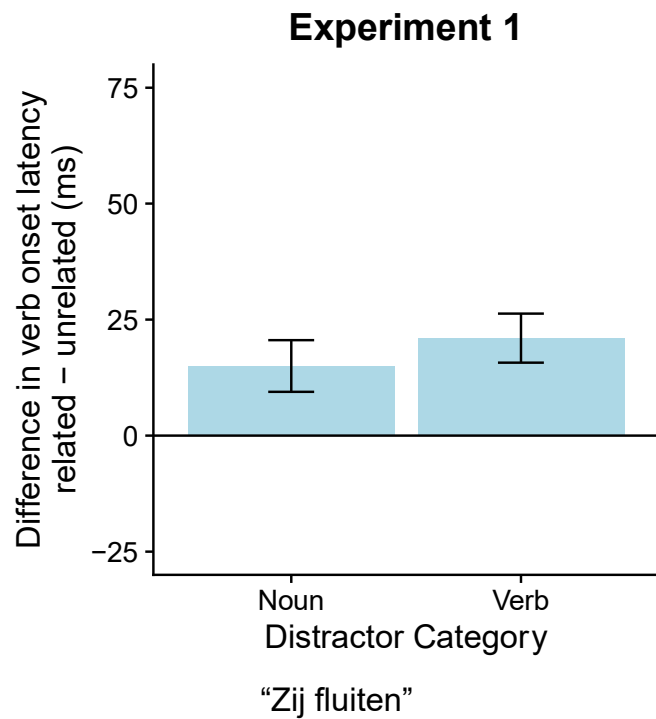
### Experiment 2



N=60

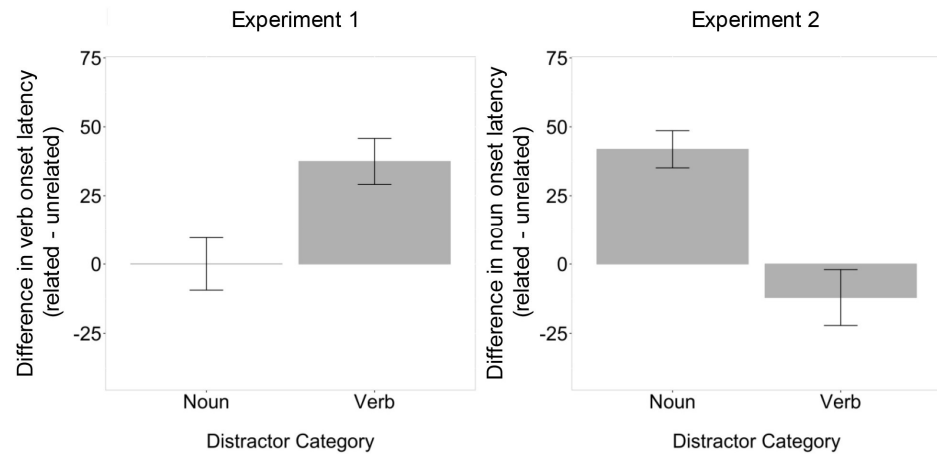


# Results of Dutch replication

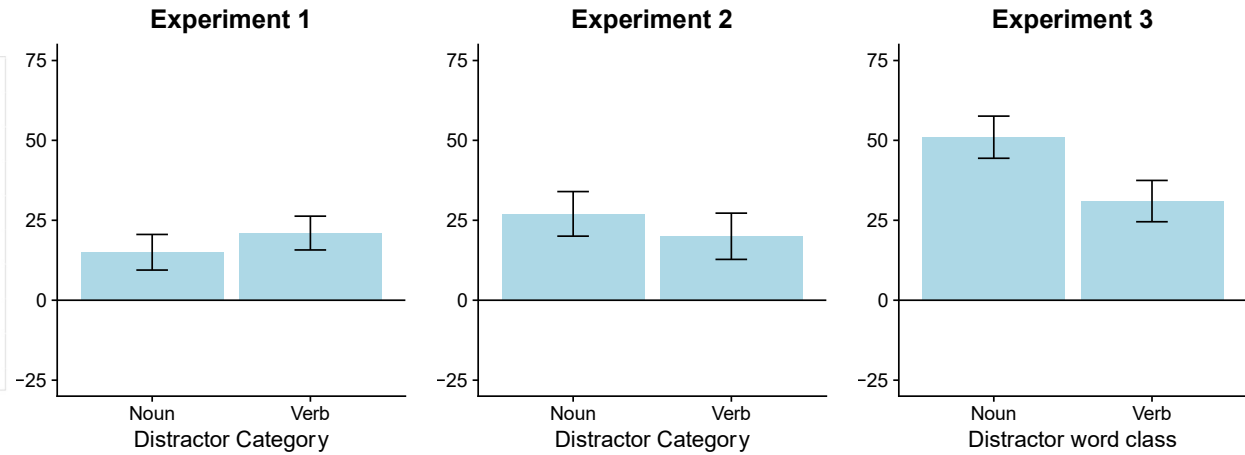


# Results Momma et al. (2020) and Dutch results

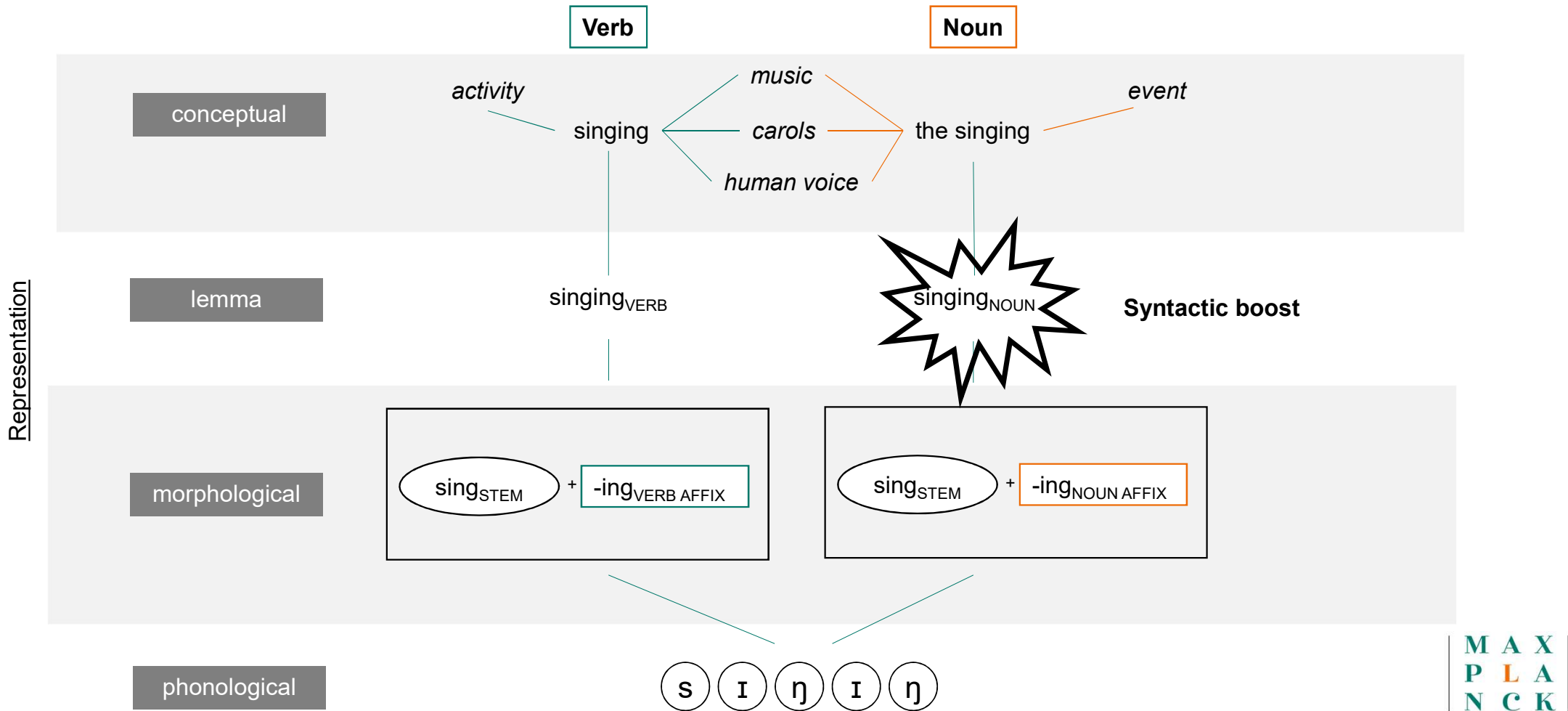
Momma et al. (English)



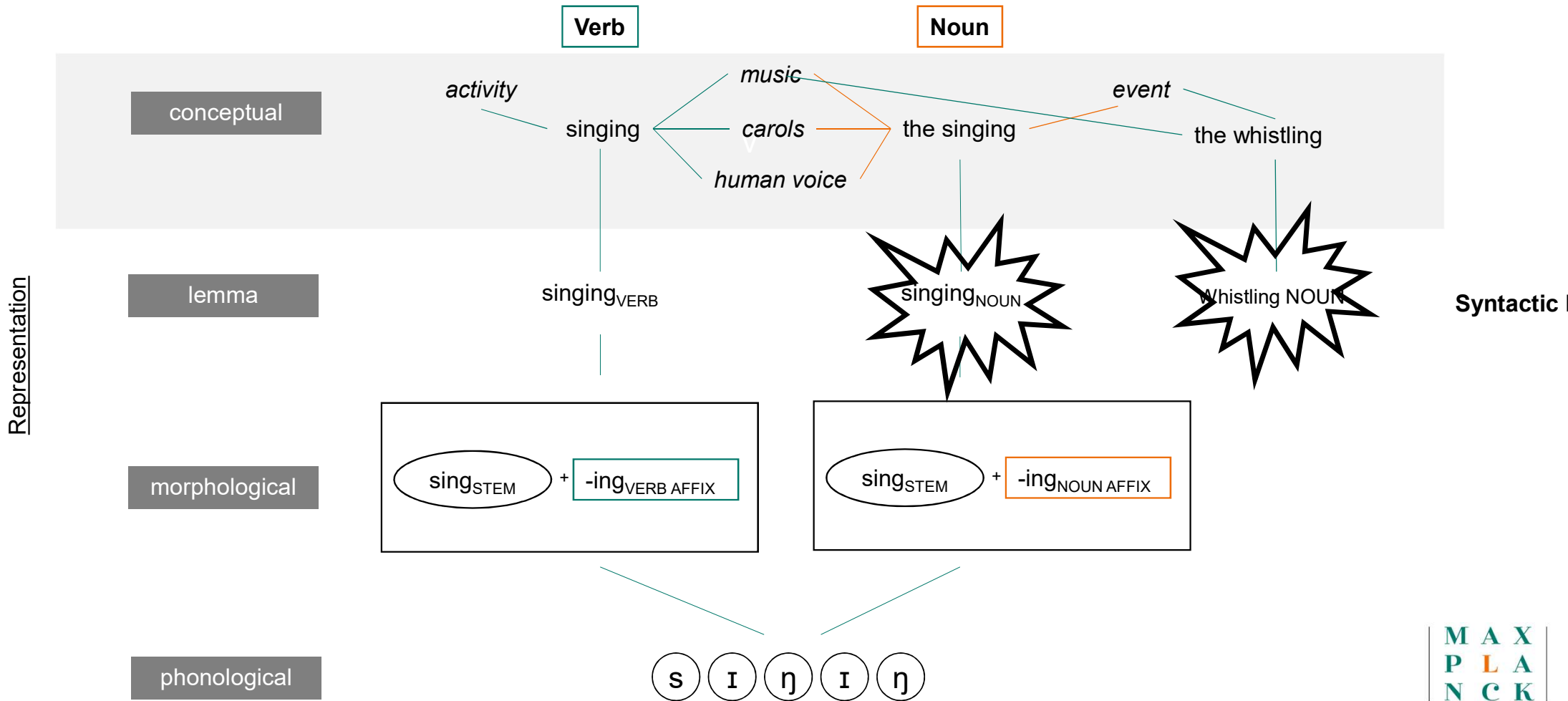
Van der Burght & Meyer (Dutch)



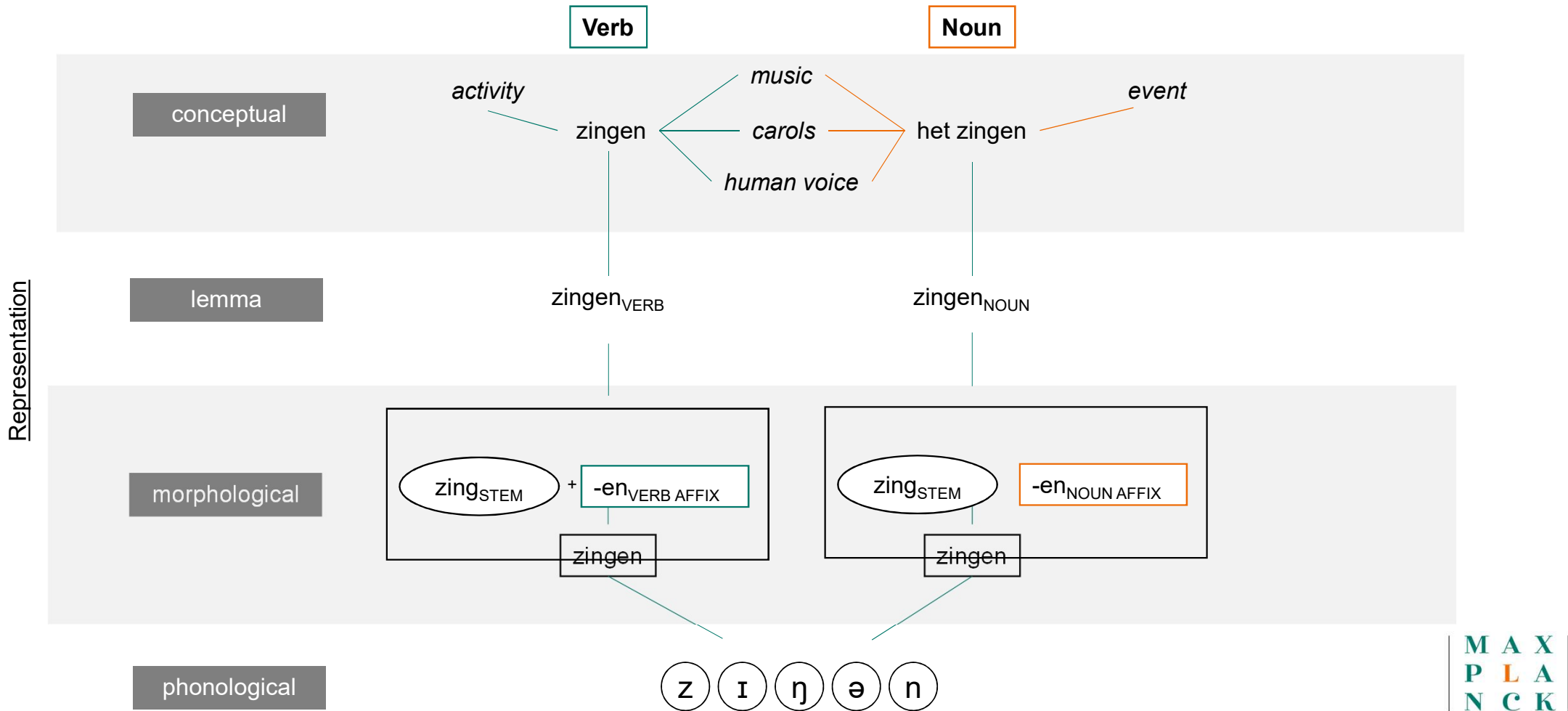
# Representation of English verbs and nominalised verb forms



# Representation of English verbs and nominalised verb forms

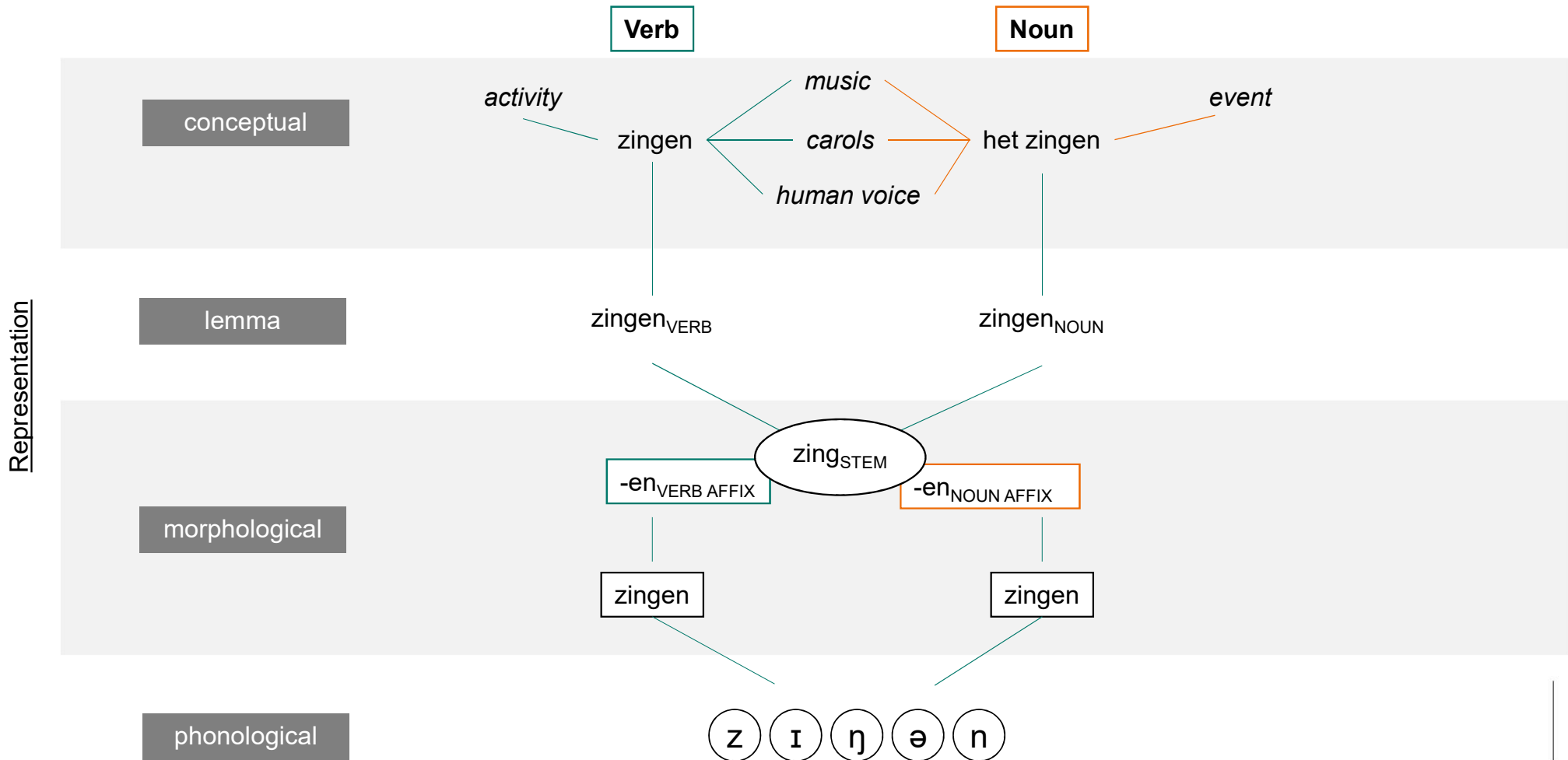


# Representation of Dutch verbs and nominalised verb forms

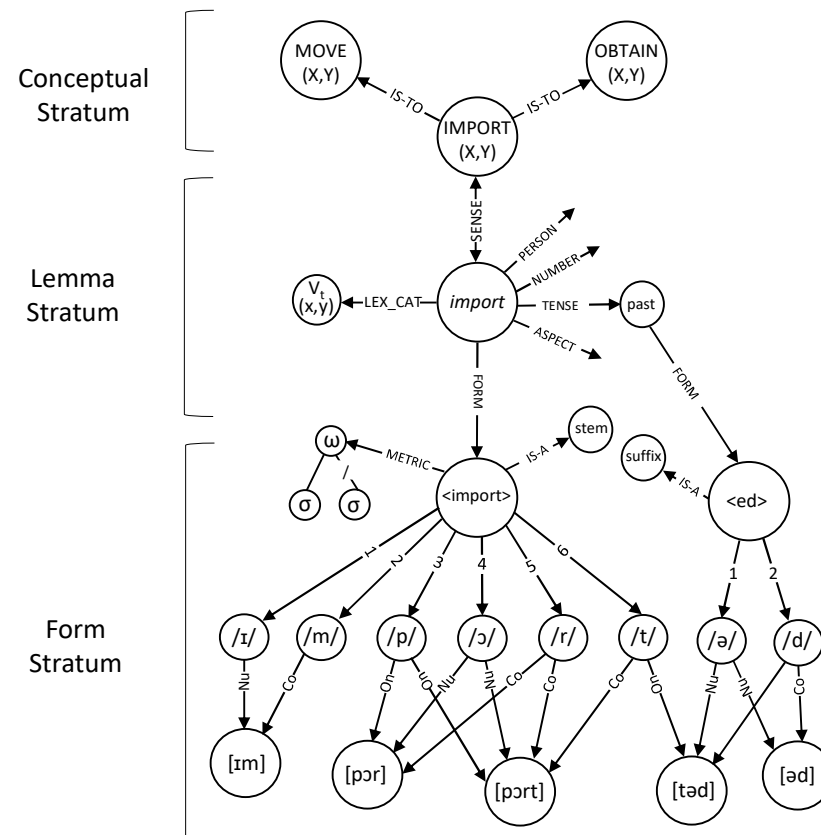




# Representation of Dutch verbs and nominalised verb forms

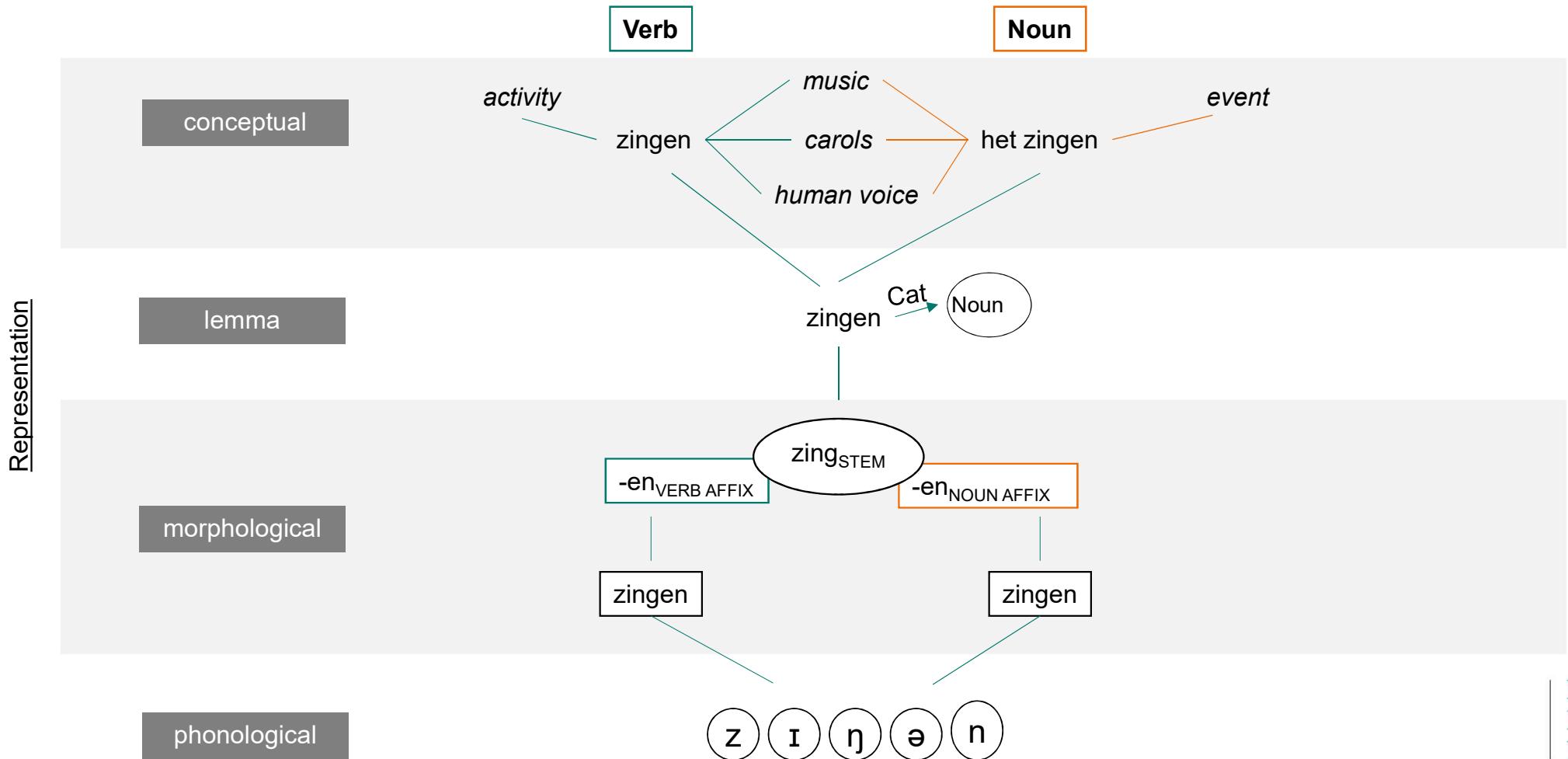


# Fragment of the lexical network underlying lexical access

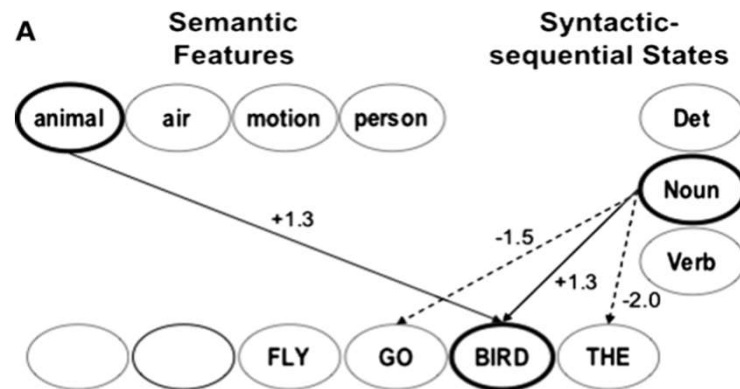


(Roelofs, 2024)

# Representation of Dutch verbs and nominalised verb forms



# The traffic cop model of lexical access

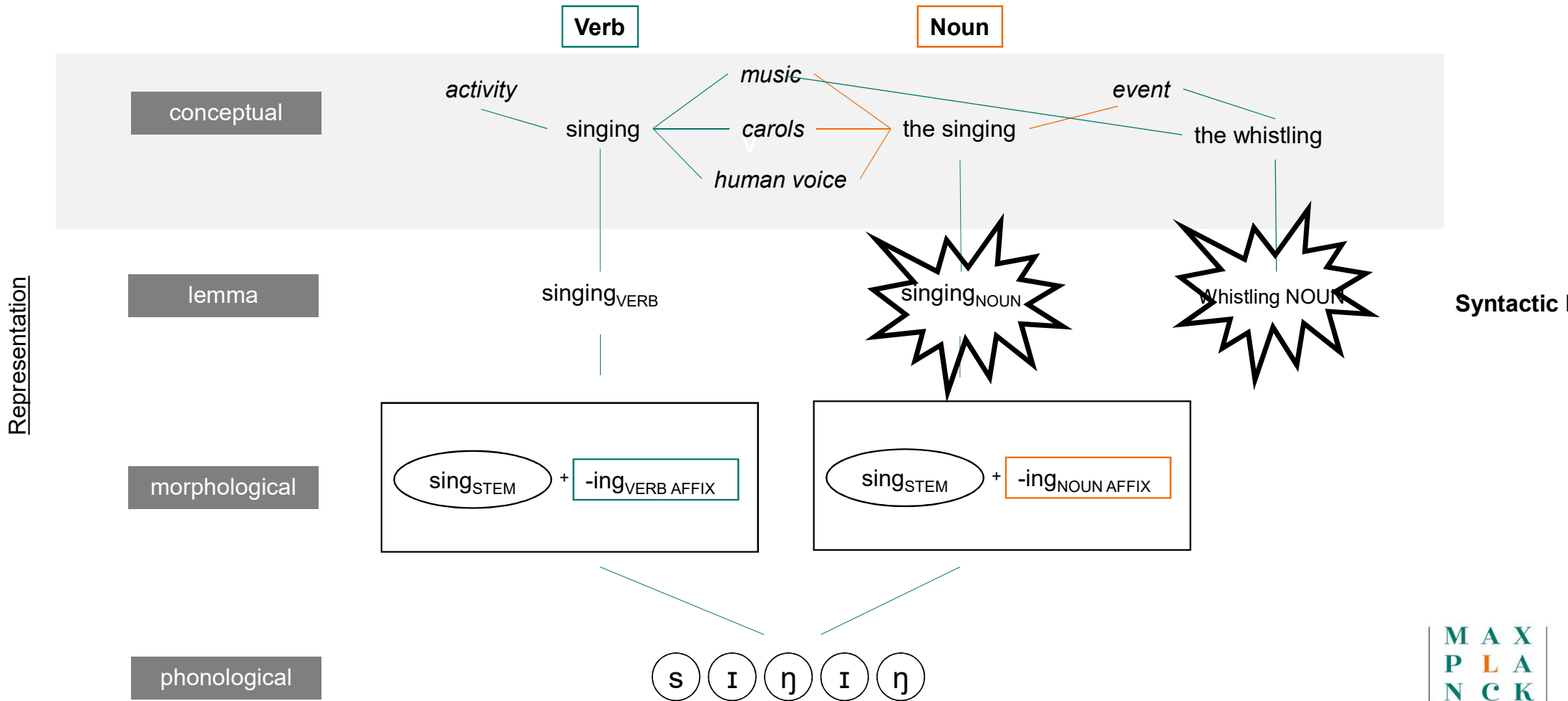


Traffic cop gives preference to a noun or a verb



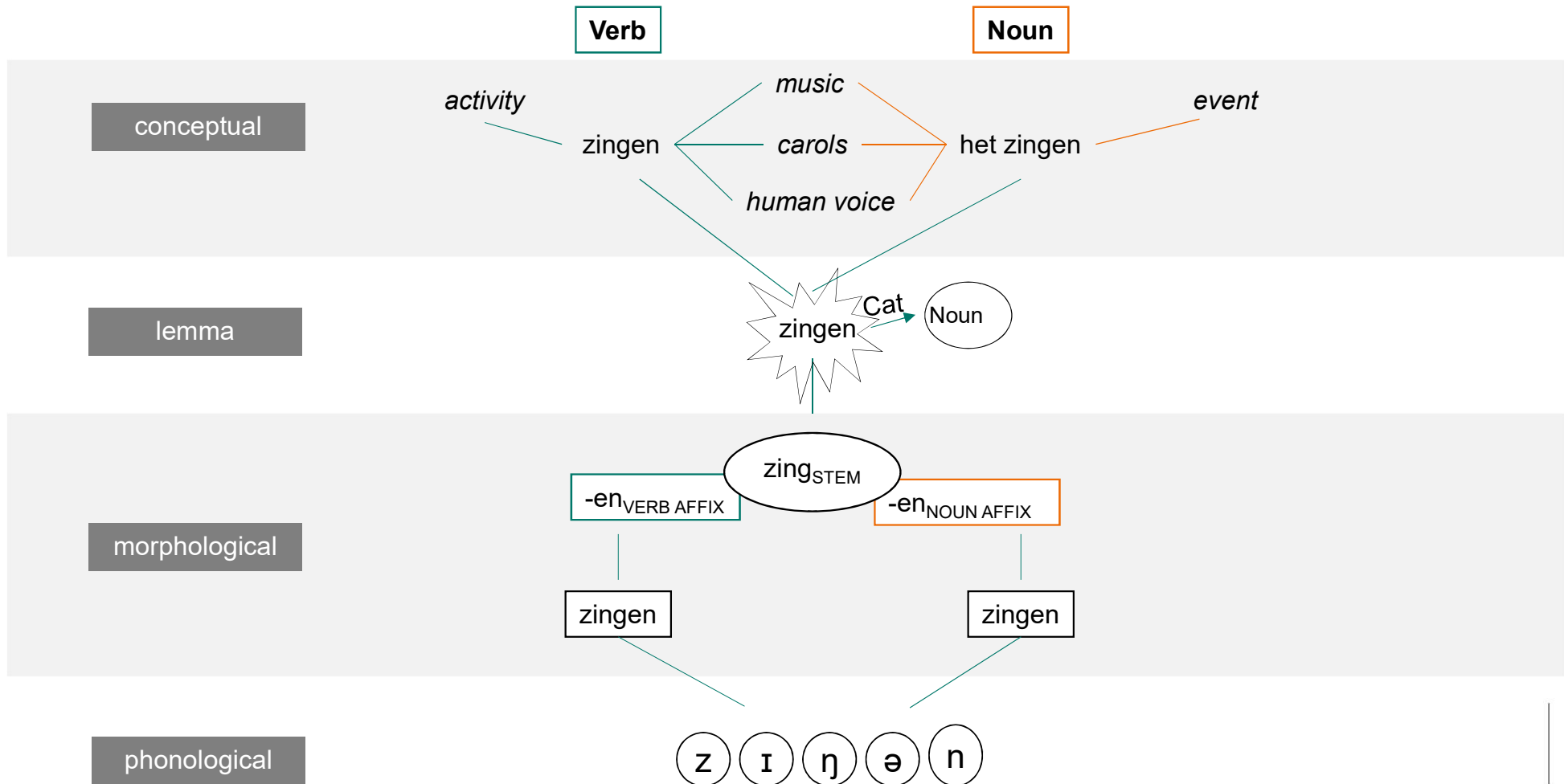
Dell, Oppenheim, Kittredge (2008)

# Representation of English verbs and nominalised verb forms



# Representation of Dutch verbs and nominalised verb forms

Representation



# Conclusions

Evidence found for syntactic constraints on lexical access in English, but not Dutch

- Due to differential influence of morphological variables in the word forms tested in the two studies?
  - English: accessing stored complex forms
  - Dutch: complex forms generated on the fly (priming through stem lemmas)

Nouns and verbs in the mental lexicon

- Despite an overlap in meaning, separate grammatical and morphological representations

Replications are informative

- This holds particularly for psycholinguistics Kobrock & Roettger (2023) Glossa Psycholin
- Subtle linguistic differences may have strong effects on processing
- Statements on “language processing” should acknowledge the specific language investigated Van der Burght et al. (2023) J Cogn Neurosci

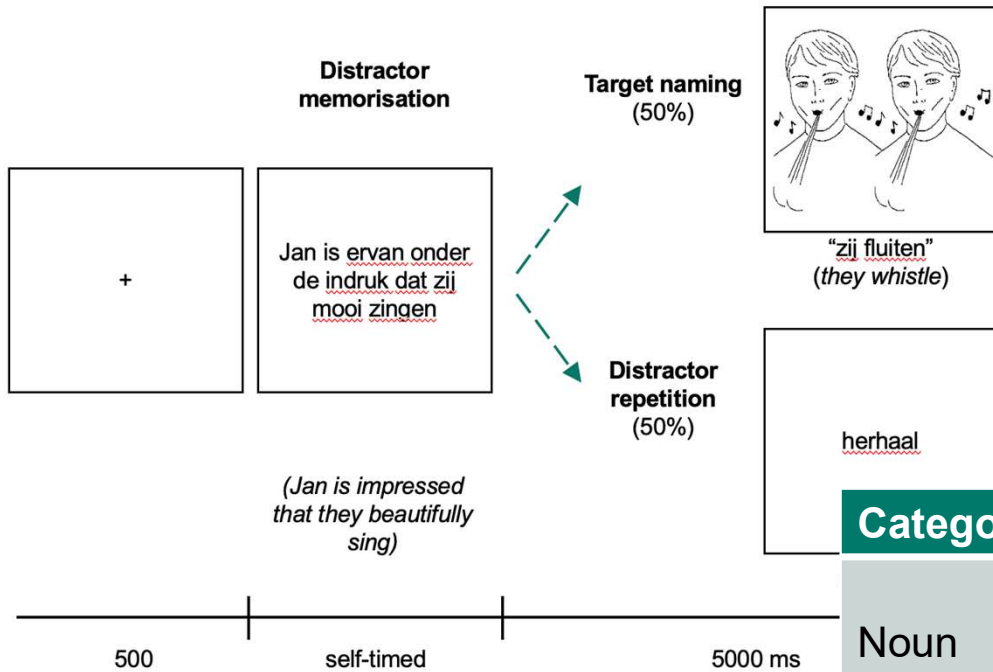
| M A X  
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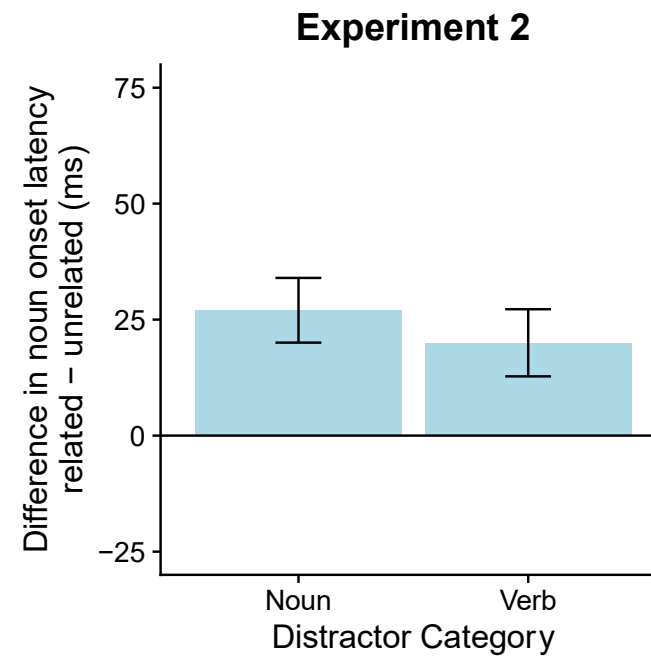
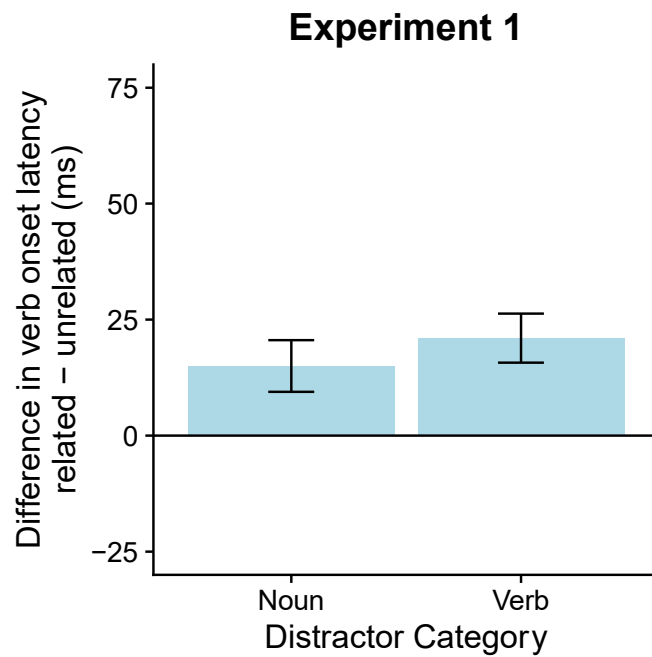
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Distractor sentences

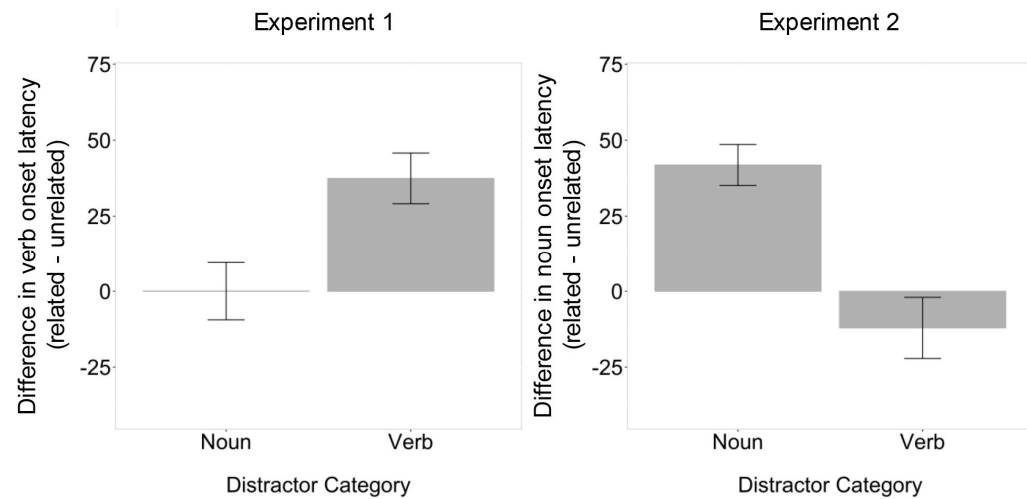
| Category | Relatedness | Dutch                                  | English                                 |
|----------|-------------|--|---|
| Noun     | Related     | ...hun mooie <u>zingen</u>             | ...their beautiful <u>singing</u>       |
| Noun     | Unrelated   | ...hun constante <u>hoesten</u>        | ...their persistent <u>coughing</u>     |
| Verb     | Related     | .... <u>zij</u> mooi <u>zingen</u>     | ...they're beautifully <u>singing</u>   |
| Verb     | Unrelated   | ... <u>zij</u> constant <u>hoesten</u> | ...they're persistently <u>coughing</u> |

# Results of Dutch replication

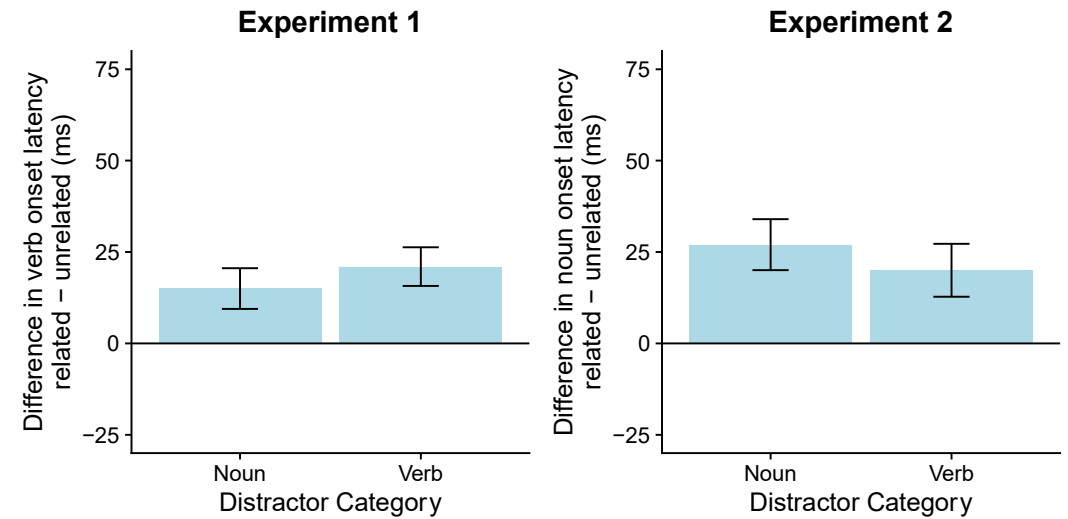


# Results Momma et al. (2020) and Dutch results

Momma et al. (English)

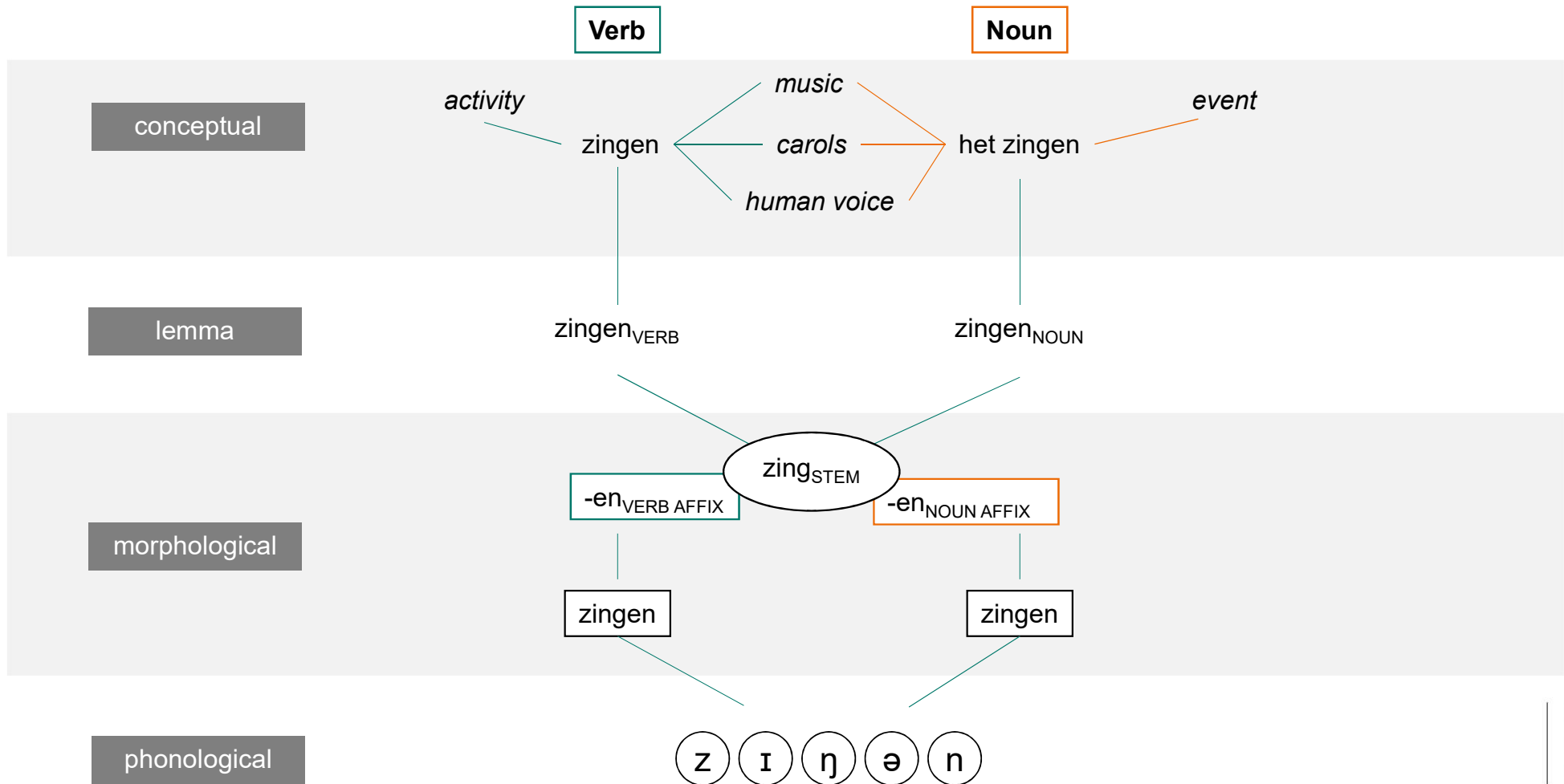


Van der Burght & Meyer (Dutch)

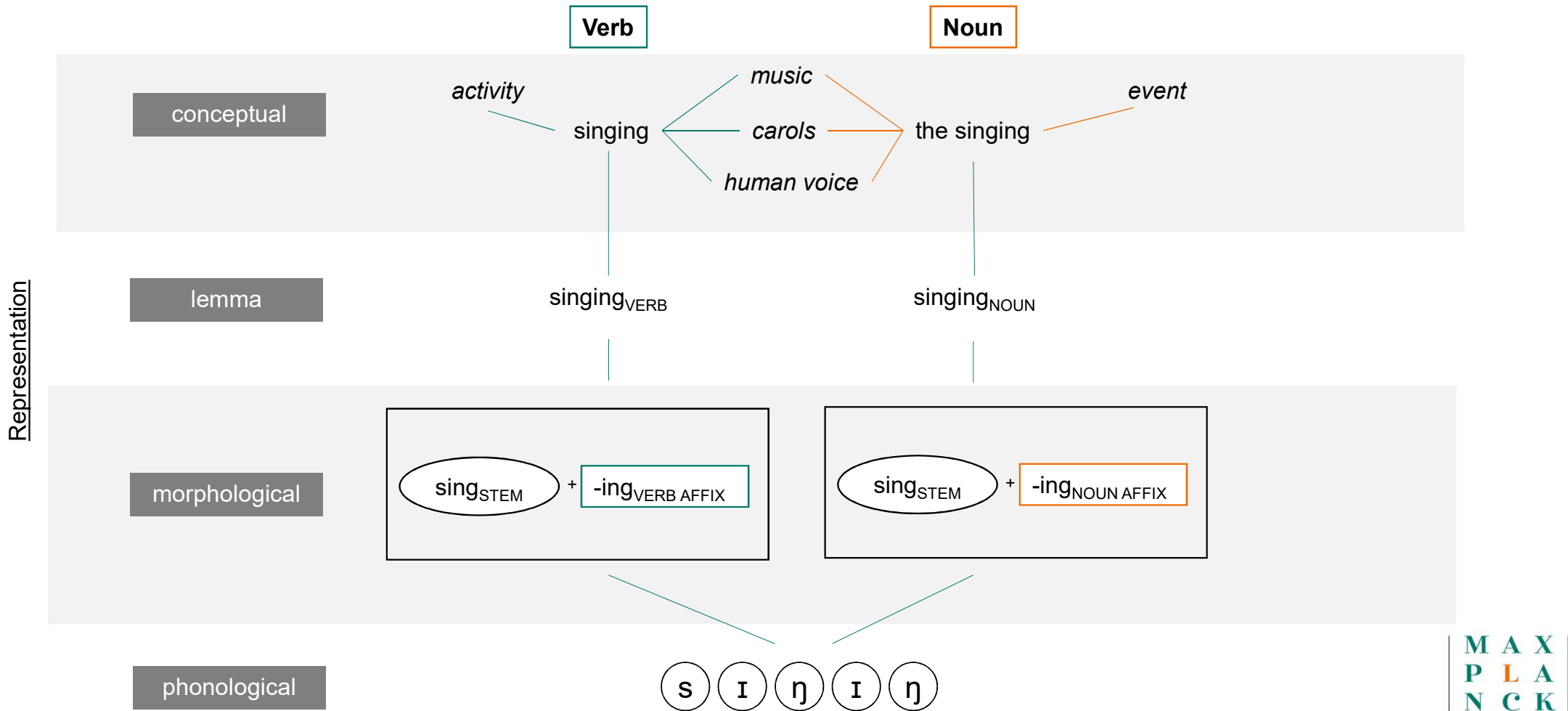


# Representation of Dutch verbs and nominalised verb forms

Representation



# Representation of English verbs and nominalised verb forms



# Conclusions

Evidence found for syntactic constraints on lexical access in English, but not Dutch

- This may be due to differential influence of morphological variables in the word forms tested in the two studies
  - English: accessing stored complex forms
  - Dutch: decompositional processing (priming through stem lemmas)

More generally:

Replications are informative

- This holds particularly for psycholinguistics Kobrock & Roettger (2023) Glossa Psycholin
- Subtle linguistic differences may have strong effects on processing
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# Thank you!

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**P L A**  
**N C K**

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