Overview
Optionality in language production primarily driven by communicative efficiency (trade-off between predictability of meaning and production effort) over production ease or input frequency.

Artificial language learning study with adult native speakers of English: Optional plural marker more often used with items that are likely to be singulative despite a counteracting bias of input frequency.

Procedure
Exp1 & Exp2: n=40 each
E1: creatures
6 animals
6 insects
E2: shapes
6 reds
6 blues

Procedure
(1) Word exposure (12 * 2 trials)
“koofta”
(2) Word learning (48 trials w/ feedback)
Optional marker “-ka”
(3) Word production (12 trials)
(4) Sentence exposure (12*4 trials)
“koofta(-ka) glim”
(5) Sentence production (12*2 trials)
Only 1 verb “glim”

Results
Successful learning of 12 nouns
% correct in 4AFC

Proportion of OPM use in sentence production

Animals / reds
Singular (75%)
Plural (25%)

Insects / blues
Singular (25%)
Plural (75%)

Predictions:
Efficiency: -ka more likely to be used with animals / reds
Availability/Production difficulty: no difference
Input frequency: -ka more likely to be used with insects/blues

Subjects used the OPM with plural animals / reds more than with plural insects / blues
Subjects learn the asymmetry in high/low plural meaning predictability in the environmental statistics and expend more linguistic signal on the meaning that is less predictable.

Conclusion
Learners induce a more efficient coding system than is present in the input: Despite the counteracting bias in their LI (= obligatory plural marking) and no bias in the input based on plural predictability, they produce more plural marking for referents that are less likely to be plural.

[What’s next?]
Does non-linguistically manipulated plural meaning predictability affect the likelihood with which learners produce the OPM?

References:

Experiment 1 (Animal/Insect)
Experiment 2 (shapes)