The syntax of plural marking in German and English pseudo-partitives

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1 Background

- English pseudo-partitives: plural marking on $N_1$ obligatory with numerals higher than 'one':

(1) Two glasses of water

Two readings: quantity/unit ($N_1 = $non-referential measure) and container ($N_1 = $referential)

- Viennese German: non-standard units (glass, cup, etc.) can distinguish between the two readings morphologically (plural marking):

(2) a. Zwei Glas Wasser
two glass.sg water
‘Two glasses of water’ (quantity, Q)
b. Zwei Gläser Wasser
two glass-pl. water
‘Two glasses of water’ (container, C)

2 The data

These readings have different syntactic/semantic/prosodic properties (Viennese German):

- Predicate selection:
(3) *Zwei Glas Wasser sind runtergefallen und zerbrochen (Q)
two glass.sg water are fallen.down and broken
(4) Zwei Gläser Wasser sind runtergefallen und zerbrochen (C)
two glasses.pl water are fallen.down and broken
'Two glasses of water fell off and smashed.'

• Fronting of N₂:

(5) Karottenₐ hab ich zwei Sack tᵢ kauft (Q)
carrot.pl have I two sack.sg bought
(6) ??Karottenₐ hab ich zwei Säck(e) tᵢ kauft (C)
carrot.pl have I two sack.pl bought
'As for carrots, I bought two sacks.'

• Fronting of N₁ + N₂

(7) ??[ Sack Karotten ]ₐ hab ich zwei tᵢ kauft (Q)
sack carrot.pl have I two bought
(8) *?[ Säck(e) Karotten ]ₐ hab ich zwei tᵢ kauft (C)
sack.pl carrot.pl have I two bought
'As for sacks of carrots, I bought two'

• Ellipsis

(9) #Zwei Sack Karotten und zwei | e | Erdäpfel (Q)
two sack.sg carrots.pl and two potatoes.pl
Only possible reading: 'Two sacks of carrots and two potatoes.'
(10) #Zwei Säck(e) Karotten und zwei | e | Erdäpfel (C)
two sacks.pl carrots.pl and two potatoes.pl
Only possible reading: 'Two sacks of carrots and two potatoes.'

• Word stress (Hankamer and Mikkelsen 2008):

(11) zwei 'Glas Wasser (Q)
two glass.sg water
(12) zwei 'Gläser Wasser (C)
two glass.pl water

These diagnostics imply a structural difference between the two readings in Ger-
man.
3 Proposal I: German, quantity

- Quantity reading: \( N_1 = \) head of a functional category, \( N_1 \) and \( N_2 \) = non-referential

Sauerland (2003): interpretable number features of a noun are determined by \( \varphi P \) → agrees with a measure noun \( \mu \) in \#", cp. Scontras (2012):

\[
\begin{align*}
\text{(13) a. } & \text{Zwei Glas Wasser} \\
& \text{two glass.sg water} \\
& \text{‘two glasses of water’ (unit)} \\
\varphi P \\
\varphi & \# P \\
\text{PL} & \text{Num} & \# \\
& \text{zwei} & \text{AT} & \text{NP} \\
& & & \mu \text{Glas Wasser}
\end{align*}
\]

\( \mu \) fixes a partition of its kind-denoting complement (cp. Chierchia 2010), numeral = argument of \( \mu \):

\[
\begin{align*}
\text{(14) } & \left[ [\text{Zwei Glas Wasser}] \right] \text{ (quantity):} \\
& \lambda k \lambda n. \lambda x [\uparrow k(x) \land \mu_{\text{Glas}}(x) = n](2)(\text{Wasser}) \\
& \rightarrow \lambda x. \uparrow \text{Wasser}(x) \land \mu_{\text{Glas}}(x) = 2
\end{align*}
\]

4 German, container

- Container reading: \( N_1 = \) head of NP, only \( N_2 \) = non-referential

Relation \( R \) holds between container \( (N_1) \) and thing/substance being contained \( (N_2) \). Merging the numeral = counting the instances of containers for which this relation holds:

\[
\begin{align*}
\text{(15) a. } & \text{Zwei Gläser Wasser} \\
& \text{two glass.pl water} \\
& \text{‘two glasses of water’ (container)}
\end{align*}
\]
5 Proposal II: English

- One structure for both readings


(16) \[ [[\text{Zwei Gläser Wasser}]] \text{(container):} \]
\[ \lambda n \lambda k \lambda x. [\text{Glas}(x) \land R(x, k) \land n(x)](\text{Wasser}) \]
\[ \rightarrow \lambda x. [\text{Glas}(x) \land R(x, \text{Wasser}) \land 2(x)] \]

(17) two glasses of water (quantity/container)

- Both readings can be assigned to this structure because the container reading entails the quantity reading.
6 Diachrony

Grammaticalization process: phrasal categories → heads (Van Gelderen 2011):

(18) a. German, container:

```
#P
  #
  #
  #
  N ...
  NP
```

b. English, quantity/Container:

```
#P
  #
  #
  #
  MP
  M NP
```

c. German, quantity:

```
#P
  #
  μ
  NP
```

7 Conclusion

- Plural marking on N in German pseudo-partitives only in the container reading
- Morphological difference = structural difference: quantity reading: 1 NP, container reading: 2 NPs
- English has one structure for both readings
- Different levels of grammaticalization of partitive structures in German vs. English
References


