

The Effect of Verbs on the Prosodic Marking of Information Status: Production and Perception in German

Workshop: Theoretical and Empirical Perspectives
on the Interrelation of Syntax, Semantics and Prosody
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Information Status

- **Basic concept:**

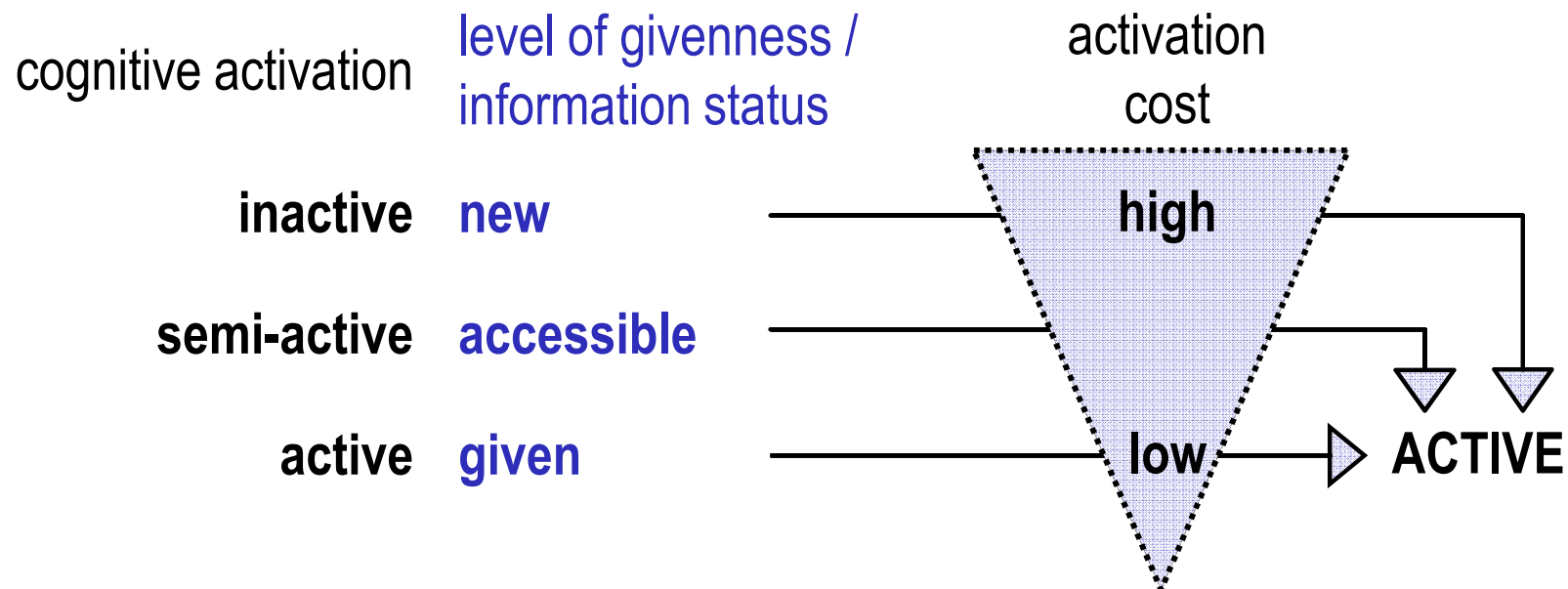
- ‘Informative’ information is usually expressed with respect to information that is already ‘known’ by the interlocutors. (cf. Büring 2007)
- It is commonly distinguished between
 - **states and events/predicates**
expressed by propositions
 - **referents**
expressed by referring expressions (usually argument categories)
- States and events are highly transient in a person’s active consciousness, whereas referents remain active for longer periods. (cf. Chafe 1994)

Information status

- **Cognitive approach:**

Chafe 1976, 1994; Lambrecht 1994

- **Givenness** = the degree of **activation** of a referent or proposition assumed by the speaker to be in the listener's consciousness at the time of utterance



Information Status

■ Recent Annotation Systems:

Nissim et al. 2004; Götze et al. 2007; Riester & Baumann 2012, 2013

- Annotation of more fine-grained differences of information status (e.g. different types of accessible information)
- Markables are only referring expressions (NPs/DPs, PPs, pronouns)
- Non-referring expressions like verbs are usually not considered as markables but can serve as point of reference.

➤ E.g. Nissim et al. 2004 - *mediated/event* :

We were travelling around Yucatan,
and **the bus** was really full.

verb ← **NOUN**

Information Status & Prosody

- **Prosody functions as a marker of information status**
 - The less activated/given the referent is, the higher is the produced prosodic prominence.

(e.g. Gussenhoven 2002)

- **Accentuation:** pitch accent vs. no accent

(e.g. Allerton 1978; Cruttenden 2006)

- **Accent status:** nuclear vs. non-nuclear

(e.g. Terken & Hirschberg 1994; Féry & Kügler 2008; Baumann & Riester 2013)

- **Accent type:** high/rising vs. low/falling

(e.g. Pierrehumbert & Hirschberg 1990; Kohler 1991; Baumann & Grice 2006; Chen et al. 2007; Schumacher & Baumann 2010; Röhr & Baumann 2010, 2011)

Research Question

▪ How informative are verbs?

– Investigation of different semantic relations between a noun and a verb and the effect on/of the prosodic marking of both

- nouns that can be linked back to a verb: verb ← NOUN
- verbs that can be linked back to a noun: noun ← VERB

1. Production study: **likelihood** of prosodic marking

2. Perception study: **acceptability** of prosodic marking

Research Question

➤ Assumptions:

The level of activation/givenness of a target element (noun/verb) differs with respect to its semantic relation to a preceding element.

This difference is reflected in the prosodic marking of the target element, in particular in terms of nuclear accent placement.

The listener is able to interpret an element's information status by means of its degree of prosodic prominence.

Reading Material

- Target elements: VERB-NOUN pairs

VERBS	NOUNS		
intentionally create sth.	instrument	created entity	
		result	result-stem
<i>backen</i> 'to bake'	<i>Rezepte</i> 'recipes'	<i>Kuchen</i> 'cakes'	<i>Gebäck</i> 'pastries'
<i>fotografieren</i> 'to photograph'	<i>Kameras</i> 'cameras'	<i>Bilder</i> 'pictures'	<i>Fotografien</i> 'photographs'
<i>malen</i> 'to paint'	<i>Farben</i> 'paints'	<i>Kunstwerke</i> 'artworks'	<i>Gemälde</i> 'paintings'

■ Reading Material: verb ← NOUN

➤ Text sample - **result** condition:

A: Zu Beginn der jährlichen Wohltätigkeitsveranstaltung fotografieren die Studenten häufig die Gäste.

B: Und dann?

A (**S-V-Adv-O**): Ich habe gehört, **sie verkaufen gerne die Bilder**.

A' (**S-Adv-O-V**): Ich habe gehört, **dass sie gerne die Bilder verkaufen**.

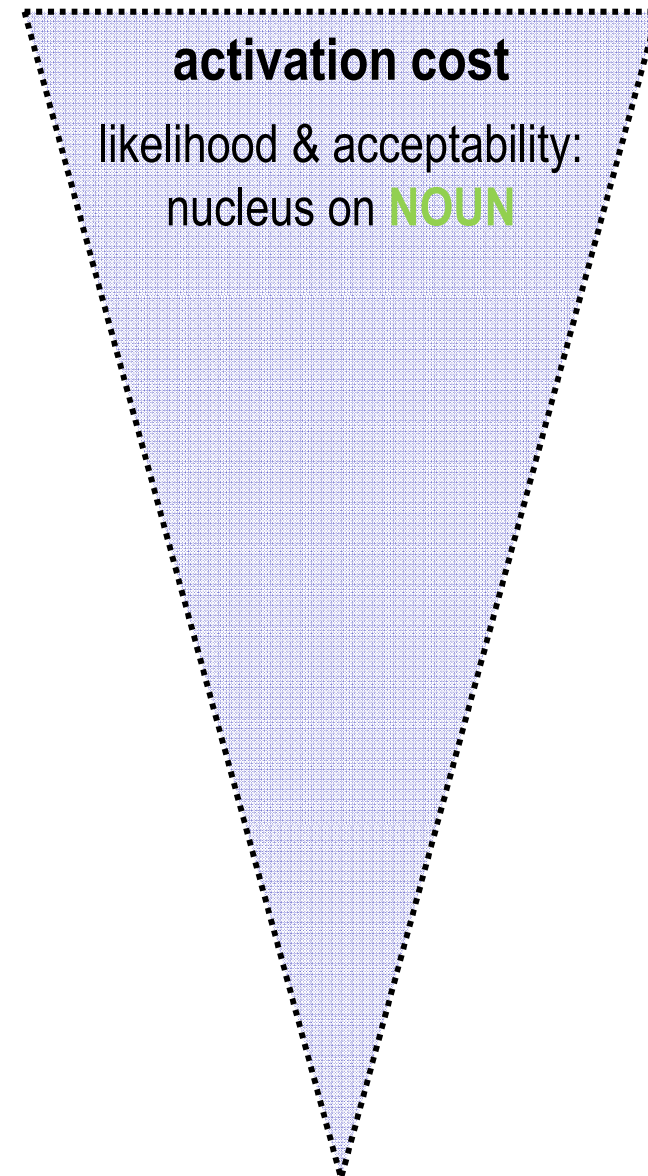
A: At the beginning of the annual charity event the students frequently photograph the guests.

B: And then?

A & A' : I've heard **they like to sell the pictures**.

Reading Material: verb ← NOUN

NOUN: referentially & lexically new	
indefinite new	∅ ← <i>Fotografien</i>
definite new	∅ ← <i>die Fotografien</i>
NOUN: lexically accessible/given	
instrument	<u>fotografieren</u> ← <i>die Kameras</i>
result	<u>fotografieren</u> ← <i>die Bilder</i>
result-stem	<u>fotografieren</u> ← <i>die Fotografien</i>



Reading Material: noun ← **VERB**

➤ Text sample - **result** condition:

A: Neben dem Studium verkaufen die Studenten öfters Bilder von Miniaturbauwerken.

B: Warum?

A (S-V-Adv-O): Ich habe gehört, **sie fotografieren** gerne die Bauwerke.

A' (S-Adv-O-V): Ich habe gehört, **dass sie gerne die Bauwerke fotografieren.**

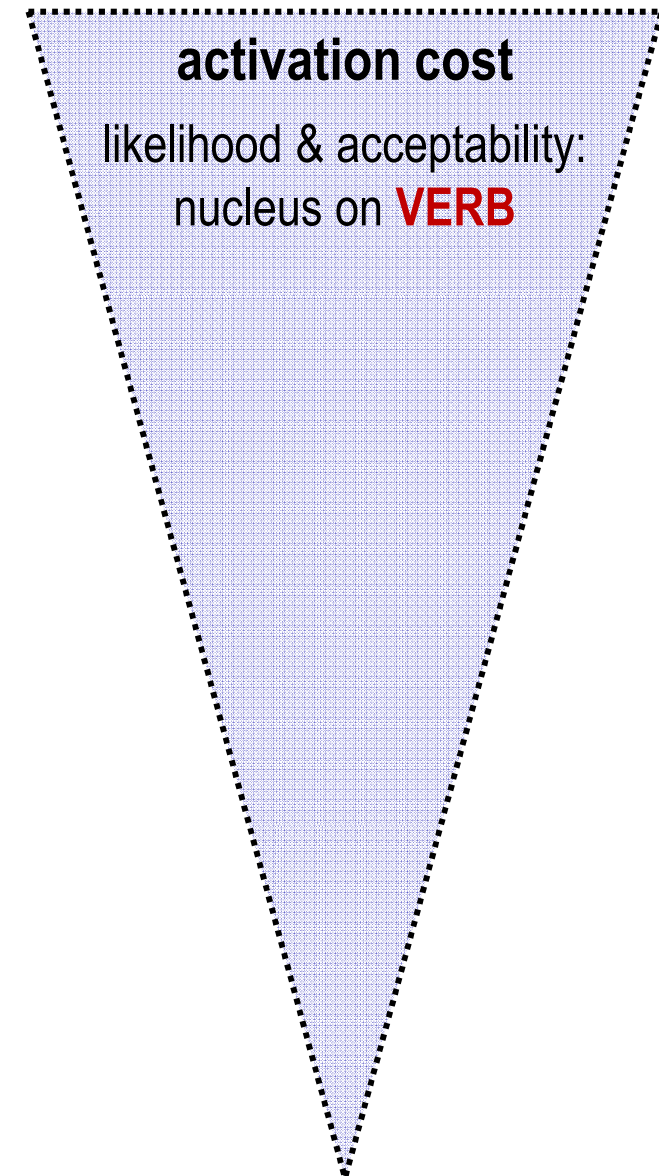
A: Besides studying the students frequently sell pictures of miniature buildings.

B: Why?

A & A' : I've heard **they like to photograph** the buildings.

Reading Material: noun ← **VERB**

VERB: lexically new	
new (indefinite obj.)	∅ ← fotografieren (<i>Bauwerke</i>)
new (indefinite obj.)	∅ ← fotografieren (<i>die Bauwerke</i>)
VERB: lexically accessible/given	
instrument	<u>Kameras</u> ← fotografieren (<i>die Bauwerke</i>)
result	<u>Bilder</u> ← fotografieren (<i>die Bauwerke</i>)
result-stem	<u>Fotografien</u> ← fotografieren (<i>die Bauwerke</i>)



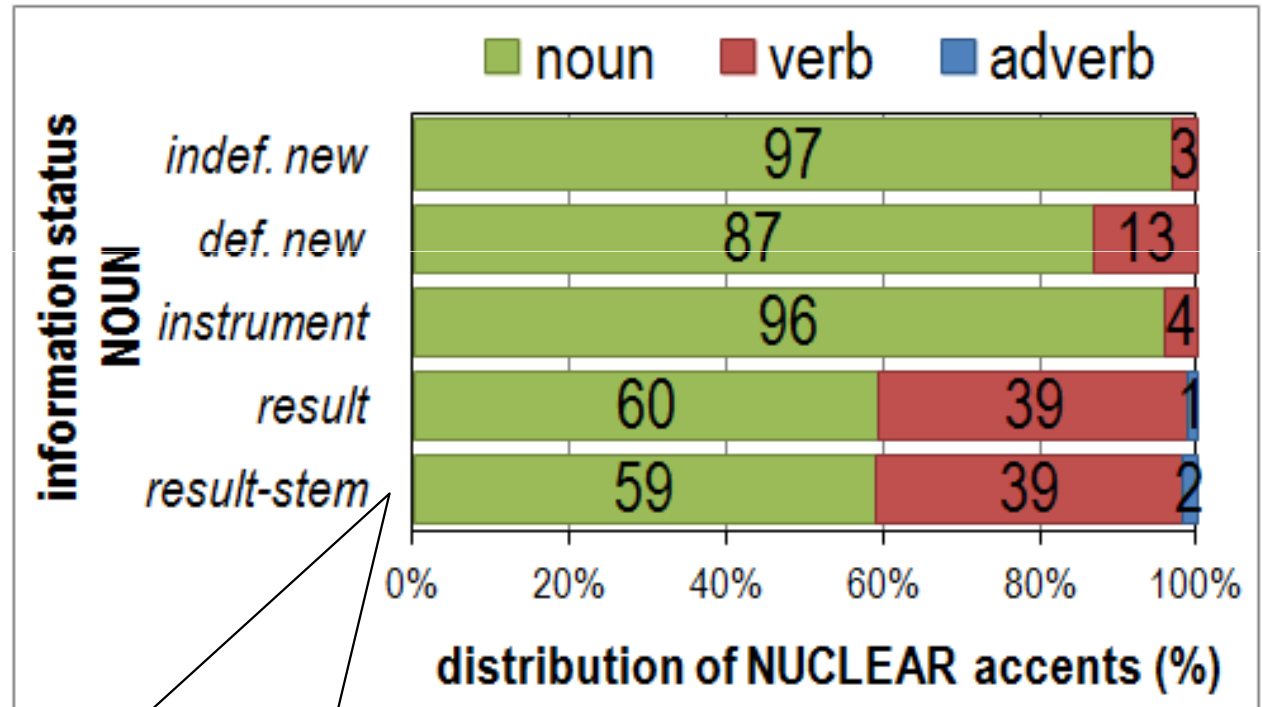
Production Study



▪ Method

- Task: Read out the texts in a contextually appropriate manner to a potential hearer.
- Subjects: 10 female and 4 male native speakers of Standard German aged between 18 and 39 years
- Analysis: **adverb**, **verb** and **noun** of the target sentences
 - **accent status**
(nuclear / prenuclear / no pitch accent)
 - **accent type**
(categorized according to GToBI - Grice et al. 2005)

Results: verb ← NOUN texts

likelihood:
nucleus on **NOUN**

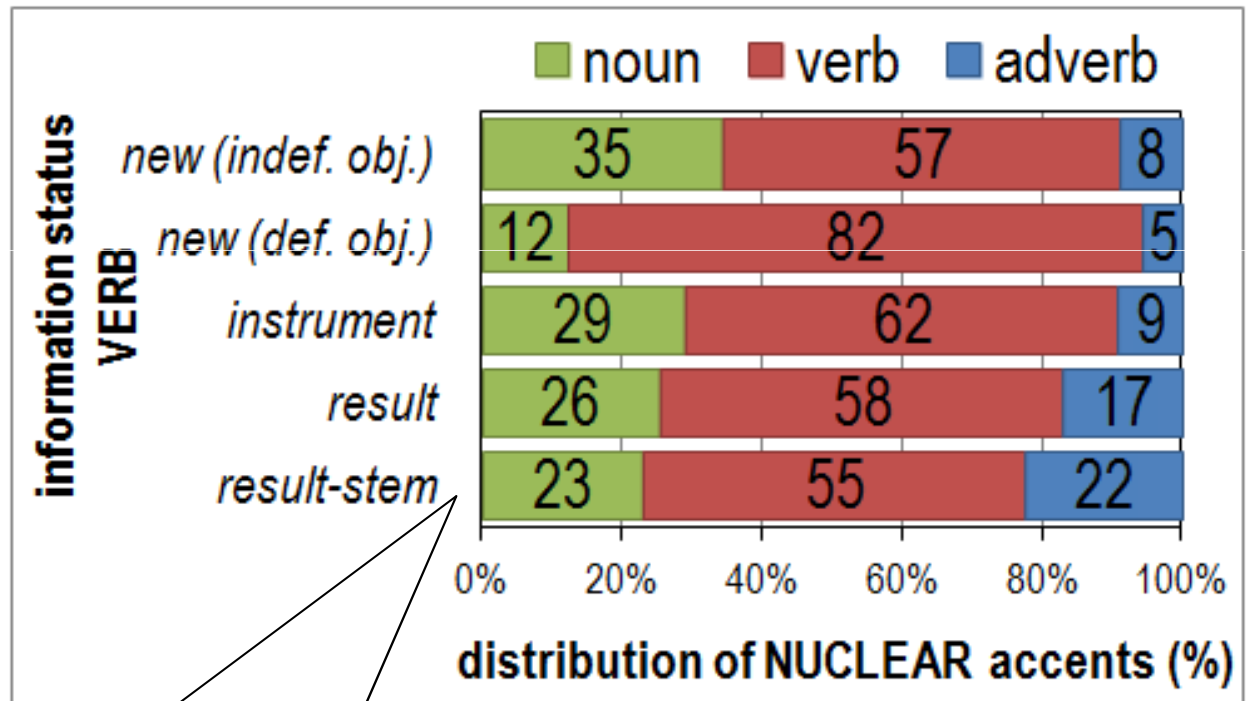




 A: Ich habe gehört, **sie verkaufen gerne die Fotografien.**
 A: I've heard they like to sell **the pictures.**

All sentence types, context types & subjects pooled:
n = 168 per information status

Results: noun ← **VERB** texts

likelihood:
nucleus on **VERB**



A: Ich habe gehört, **sie fotografieren** gerne die Bauwerke.

A: I've heard they like to **photograph** the buildings.

All sentence types, context types & subjects pooled:
n = 168 per information status

Results – Production Study: Summary

■ Nuclear accent placement:

– Binary distinction in verb ← NOUN texts:

- *Result* nouns are less often marked by a nuclear accent than *instrument* and *new* nouns.
- Stronger semantic relatedness of both types of *result* nouns to the corresponding verb
- Different types of accessible information: *result* vs. *instrument* nouns

– Stepwise changes in noun ← VERB texts:

- With increasing discourse-givenness of the verb, the nuclear accent was placed increasingly often on the adverb than on the verb or noun.
- Verbs differ in their level of activation/givenness.

■ Accent type:

– No effect of information status, but speaker-specific preferences

- General preference: high (H*) > rising (L+H*) > falling (H+!H*/H+L*) pitch accents
- Falling pitch accent types preferred in final position

Perception Study

- **Verification** of relation between different semantic relations and differences in nuclear accent placement **from listener's perspective**
- **Acceptability rating** of 3 different prosodic realizations on each target sentence with regard to corresponding context:

(L+)H* nuclear accent on ...

noun: *Ich habe gehört, sie verkaufen gerne die **FotograFIEN**.* 🔊

verb: *Ich habe gehört, sie **verKAUfen** gerne die Fotografien.* 🔊

adverb: *Ich habe gehört, sie verkaufen **GERne** die Fotografien.* 🔊

I've heard they like to sell the photographs.

■ Perception Study

■ Method

- Online questionnaire (*oFB - der onlineFragebogen*):
software - SoSci Survey (Leiner 2014)
server - www.soscisurvey.de
- Subjects:
 - verb ← NOUN
29 native German speakers (21 female)
aged between 19 and 28 years
 - noun ← VERB
32 native German speakers (26 female)
aged between 18 and 30 years

Perception Study: Task

How well does the melody of the utterance (audio-file) fit into the context?

Wie gut passt die Melodie der Äußerung (Audio-Datei) in den Kontext?

A: Zu Beginn der jährlichen Wohltätigkeitsveranstaltung fotografieren die Studenten häufig die Gäste.

B: Und dann?

A: ...



gar nicht



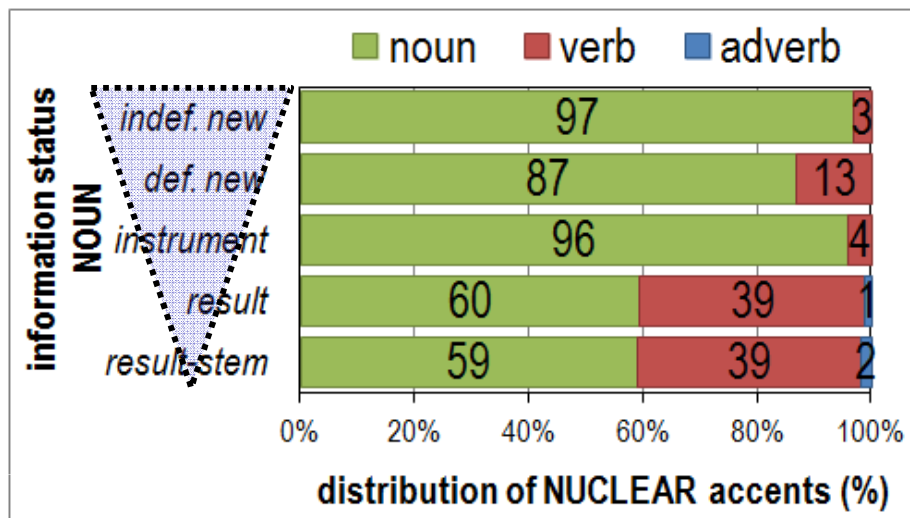
sehr gut

not at all

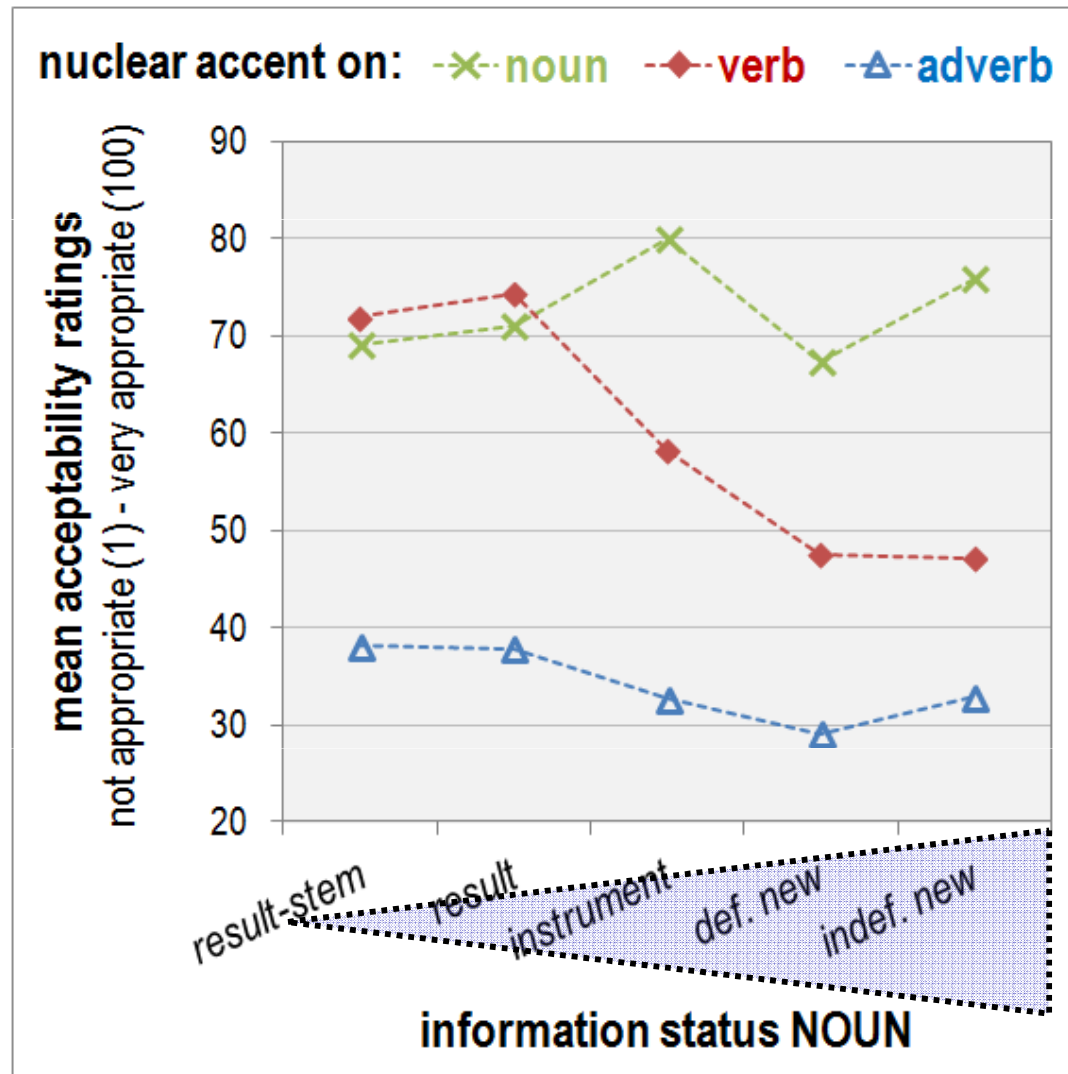
very well

Results: verb ← NOUN texts

1. Production



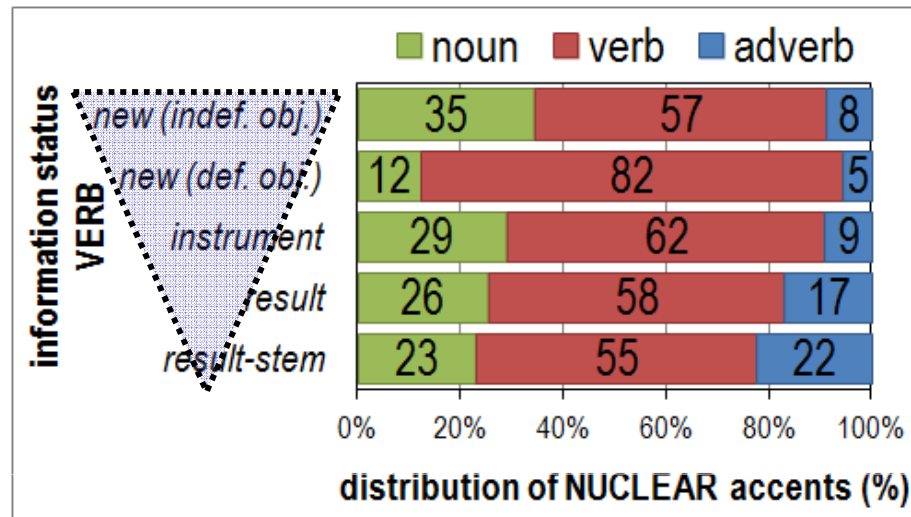
2. Perception



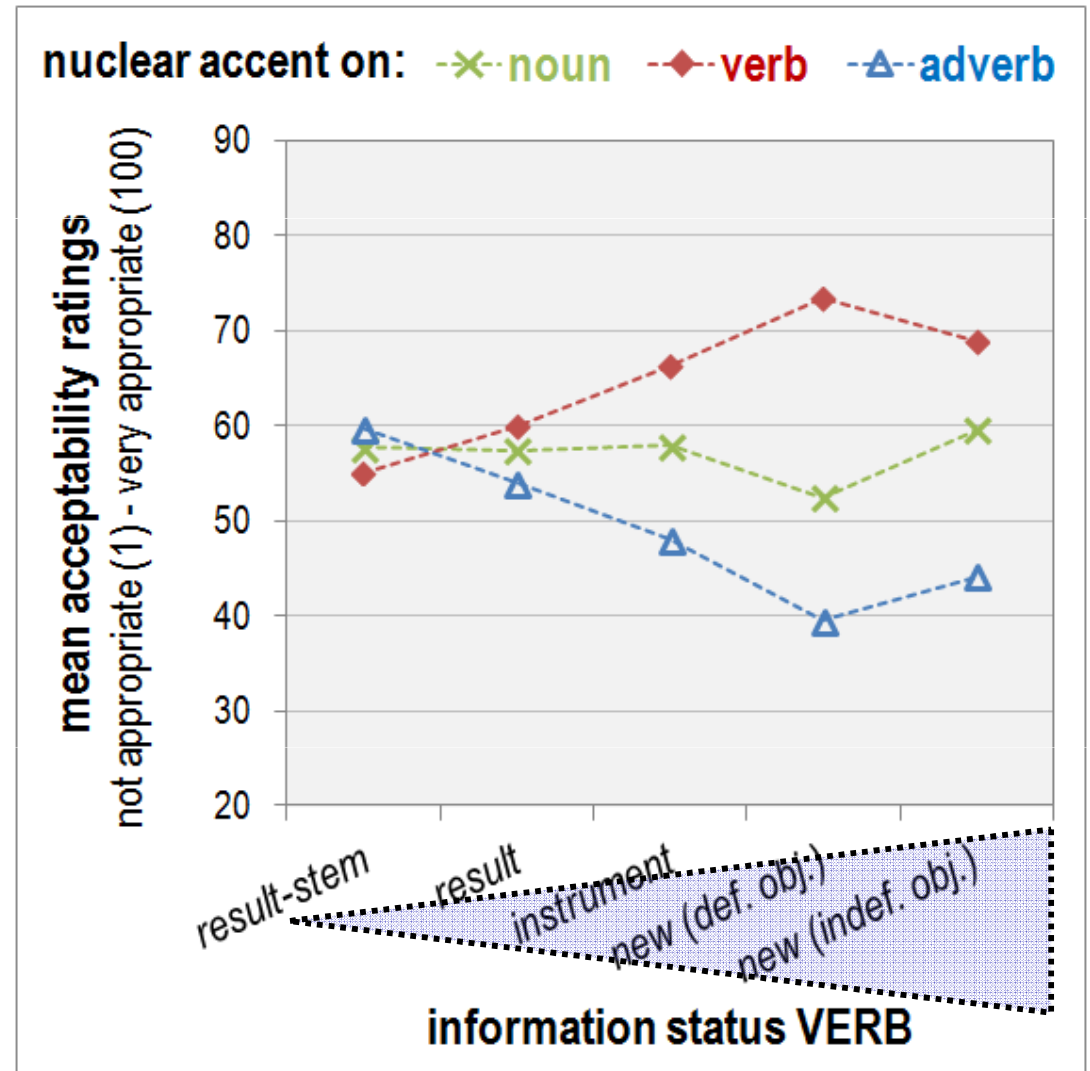
All sentence types, context types & subjects pooled.

Results: noun ← VERB texts

1. Production



2. Perception



All sentence types, context types & subjects pooled.

Results – Perception Study: Summary

- Perceptual acceptability of nuclear accent placement reflects distribution of nuclear accents in production:
 - verb ← NOUN texts:
 - A nuclear accent on the verb is more appropriate in sentences with *result* nouns than in sentences with *instrument* and *new* nouns.
 - noun ← VERB texts:
 - With increasing discourse-givenness of the verb, the appropriateness of its marking by a nuclear accent stepwise decreases whereas the appropriateness of a nuclear accent on the adverb increases.

Conclusions

- **General principles of accentuation:**

- nuclear accent status > accent type
- argument > predicate

- **Informativeness of verbs:**

- Differences in a verb's informativeness are reflected by some variation in nuclear accent placement.
- Weaker effect compared to reference relations between referring/nominal expressions may reflect the more transient status of events in a person's consciousness (cf. Chafe 1994).
- Verbs should be integrated into a wider notion of information status.

Thank you.

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Reading Material: verb ← NOUN

NOUN: referentially & lexically new	
indefinite new	<p>A: Zu Beginn der jährlichen Wohltätigkeitsveranstaltung helfen die Studenten häufig beim Aufbau. B: Und dann?</p> <p>A (S-V-Adv-O): Ich habe gehört, sie verkaufen gerne Fotografien. A' (S-Adv-O-V): Ich habe gehört, dass sie gerne Fotografien verkaufen.</p>
definite new	<p>A: Zu Beginn der jährlichen Wohltätigkeitsveranstaltung helfen die Studenten häufig beim Aufbau. B: Und dann?</p> <p>A (S-V-Adv-O): Ich habe gehört, sie verkaufen gerne die Fotografien. A' (S-Adv-O-V): Ich habe gehört, dass sie gerne die Fotografien verkaufen.</p>
NOUN: lexically accessible/given	
instrument	<p>A: Zu Beginn der jährlichen Wohltätigkeitsveranstaltung <u>fotografieren</u> die Studenten häufig die Gäste. B: Und dann?</p> <p>A (S-V-Adv-O): Ich habe gehört, sie verkaufen gerne die Kameras. A' (S-Adv-O-V): Ich habe gehört, dass sie gerne die Kameras verkaufen.</p>
result	<p>A: Zu Beginn der jährlichen Wohltätigkeitsveranstaltung <u>fotografieren</u> die Studenten häufig die Gäste. B: Und dann?</p> <p>A (S-V-Adv-O): Ich habe gehört, sie verkaufen gerne die Bilder. A' (S-Adv-O-V): Ich habe gehört, dass sie gerne die Bilder verkaufen.</p>
result-stem	<p>A: Zu Beginn der jährlichen Wohltätigkeitsveranstaltung <u>fotografieren</u> die Studenten häufig die Gäste. B: Und dann?</p> <p>A (S-V-Adv-O): Ich habe gehört, sie verkaufen gerne die Fotografien. A' (S-Adv-O-V): Ich habe gehört, dass sie gerne die Fotografien verkaufen.</p>

activation cost
likelihood &
acceptability:
nucleus on NOUN

Reading Material: noun ← **VERB**

VERB: lexically new	
new (indefinite obj.)	<p>A: Neben dem Studium basteln die Studenten öfters Miniaturbauwerke. B: Warum? A (S-V-Adv-O): Ich habe gehört, sie fotografieren gerne Bauwerke. A' (S-Adv-O-V): Ich habe gehört, dass sie gerne Bauwerke fotografieren.</p>
new (indefinite obj.)	<p>A: Neben dem Studium basteln die Studenten öfters Miniaturbauwerke. B: Warum? A (S-V-Adv-O): Ich habe gehört, sie fotografieren gerne die Bauwerke. A' (S-Adv-O-V): Ich habe gehört, dass sie gerne die Bauwerke fotografieren.</p>
VERB: lexically accessible/given	
instrument	<p>A: Neben dem Studium beschäftigen sich die Studenten öfters mit <u>Kameras</u> und Miniaturbauwerken. B: Warum? A (S-V-Adv-O): Ich habe gehört, sie fotografieren gerne die Bauwerke. A' (S-Adv-O-V): Ich habe gehört, dass sie gerne die Bauwerke fotografieren.</p>
result	<p>A: Neben dem Studium verkaufen die Studenten öfters <u>Bilder</u> von Miniaturbauwerken. B: Warum? A (S-V-Adv-O): Ich habe gehört, sie fotografieren gerne die Bauwerke. A' (S-Adv-O-V): Ich habe gehört, dass sie gerne die Bauwerke fotografieren.</p>
result- stem	<p>A: Neben dem Studium verkaufen die Studenten öfters <u>Fotografien</u> von Miniaturbauwerken. B: Warum? A (S-V-Adv-O): Ich habe gehört, sie fotografieren gerne die Bauwerke. A' (S-Adv-O-V): Ich habe gehört, dass sie gerne die Bauwerke fotografieren.</p>

activation cost
 likelihood &
 acceptability:
 nucleus on **VERB**