

Psych-verbs in language production – how special are they?

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Question

- To what extent do thematic roles determine word order?
- Does argument ordering for psych-verbs follow from the position of the experiencer in the semantic role hierarchy?

(1) The Semantic Role Hierarchy

Agent > Benefactive > Recipient/Experiencer > Instrument >
Theme/Patient > Location

(Bresnan & Kanerva, 1989: 23)

Introduction

- (2) The Semantic Role Hierarchy
Agent > Benefactive > Receptient/Experiencer > Instrument > Theme/Patient > Location
- (3) The agent precedes all other arguments.
- (4) Der Feind hat die Burg zerstört.
The enemy has the castle destroyed
'The enemy destroyed the castle'

However:

- (5) The case hierarchy (partial)
Nom > Acc > Dat
- (6) The subject precedes all other arguments.
- (7) Die Burg wurde von dem Feind zerstört.
The castle was by the enemy destroyed
'The castle was destroyed by the enemy.'

Introduction

- (8) The Semantic Role Hierarchy
Agent > Benefactive > **Recipient/Experiencer** > Instrument >
Theme/Patient > Location
- (9) The experiencer precedes the theme.
- (10) a. Der Sänger liebte das neue Lied.
b. Den Sänger entzückte das neue Lied.
- (11) Extended Animacy Hierarchy
first/second person pronouns > third person pronoun > proper
names > human common noun > nonhuman animate common
noun > inanimate common noun
(Croft, 2003:130)
- (12) An animate argument precedes an inanimate argument.

Possible determinants of word order:

- Syntactic information
 - syntactic functions
 - Syntactic information
 - thematic roles
 - animacy
 - Weight
 - Discourse-related information
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- There is evidence that order can be affected by all of these determinants.
 - How the factors interact is an open question however.

Previous work

Ferreira (1994):

- animacy and verb semantics taken into account simultaneously
- constrained production procedure

Table : Sample material from Ferreira (1994)

Agentive Verb

Both N animate, N-order 1

COWBOY SHERIFF AVOIDED

Both N animate, N-order 2

SHERIFF COWBOY AVOIDED

Animate N before inanimate N

COWBOY FRONTIER AVOIDED

Inanimate N before animate N

FRONTIER COWBOY AVOIDED

Object-Experiencer Verb

Both N animate, N-order 1

COWBOY SHERIFF CHALLENGED

Both N animate, N-order 2

SHERIFF COWBOY CHALLENGED

Animate N before inanimate N

COWBOY FRONTIER CHALLENGED

Inanimate N before animate N

FRONTIER COWBOY CHALLENGED

Previous work

Ferreira (1994): Results

Table : Percentage passive clauses in Experiment 3 of Ferreira (1994)

	Agentive verb	Object-Experiencer Verb	Mean
Nouns			
Both animate	5	19	12
One animate, one inanimate	6	36	21
Mean	6	28	

Previous work

Ferreira (1994):

- Syntactic function assignments: affected both by Animacy and Semantic Roles
- Order effects are only secondary, derived from the effects on syntactic functions.

Verhoeven (2014): extends the findings of Ferreira (1994) to **Linear order**:

- Animacy and thematic roles have a large effect on voice.
- Active OS sentences occurred only when favored by both animacy and thematic roles (object-experiencer verbs with inanimate subject).

Case Study 1: The position of object pronouns

Object pronouns can appear either after or before the subject:

- (13) a. Peter sagte, dass der Lehrer **ihn** informiert hat.
P. said that the teacher him informed has.
- b. Peter sagte, dass **ihn** der Lehrer informiert hat.
P. said that him the teacher informed has.
'Peter said that the teacher informed him.'

In contrast to scrambling of full NPs:

- Fronting of object pronouns is a common phenomenon.
- Fronting of object pronouns does not need special discourse conditions.

Experiment 1: Method

Question

- Does animacy affect order during sentence production when verb semantics is held constant?

Participants

- 24 students at the University of Frankfurt

Materials

- 48 sentences in 8 versions each
- Factor 1: Animacy of the subject – animate versus inanimate
- Factor 2: Length of the subject – short (2 W.) versus long (4 W.)
- Factor 3: Order within the target sentence: SO versus OS

Experiment 1: Materials

Table : Sample materials for Experiment 1.

SO

Inanimate Das (äußerst wertvolle) Buch hat den Opa erfreut.
the-NOM extremely valuable book has the-ACC grandpa pleased

Animate Der (äußerst lustige) Enkel hat den Opa erfreut.
the-NOM extremely funny grandson has the-ACC grandpa pleased

OS

Inanimate Den Opa hat das (äußerst wertvolle) Buch erfreut.
the-ACC grandpa has the-NOM extremely valuable book pleased

Animate Den Opa hat der (äußerst lustige) Enkel erfreut.
the-ACC grandpa has the-NOM extremely funny grandson pleased

Prompt: Der Opa hat gesagt, dass ...
the grandpa has said that

Experiment 1: Results

Participants' answers were digitally recorded and classified according to the following categories:

- correct answer: SO or OS
- incorrect answer

Table : Percentages of sentences produced with OS order in Experiment 1. Standard error (by participants) is given in parentheses.

	SO main clause		OS main clause	
	Animate	Inanimate	Animate	Inanimate
Short	47 (7.7)	79 (5.6)	55 (6.2)	84 (4.6)
Long	60 (7.1)	75 (5.2)	74 (6.0)	90 (3.7)

Experiment 1: Results

Is the effect of animacy a side effect of including psych-verbs that can have an agentive reading (e.g., *chockieren* 'to shock')?

Subject	Verb agentive?	% OS
Animate	no	62
Inanimate	no	81
Animate	ambiguous	58
Inanimate	ambiguous	83

Experiment 2: Method

Question

- Does verb semantics affect order during sentence production when animacy is held constant?

Participants

- 32 students at the university of Frankfurt

Materials

- 48 sentences in 8 versions each
- Factor 1: Verb type – subject-experiencer versus object-experiencer
- Factor 2: Length of the subject – short (2 W.) versus long (4 W.)
- Factor 3: Order within the target sentence: SO versus OS

Experiment 2: Materials

Table : Sample materials for Experiment 2.

SO							
Subj-exp	Der the-NOM	(äußerst extremely	lustige) funny	Enkel grandson	hat has	den the-ACC	Opa grandpa bewundert. admired
Obj-exp	Der the-NOM	(äußerst extremely	lustige) funny	Enkel grandson	hat has	den the-ACC	Opa grandpa erfreut. pleased
OS							
Subj-exp	Den the-ACC	Opa grandpa	hat has	der the-NOM	(äußerst extremely	lustige) funny	Enkel grandson bewundert. admired
Obj-exp	Den-ACC the	Opa grandpa	hat has	der the-NOM	(äußerst extremely	lustige) funny	Enkel grandson erfreut. pleased
Prompt:	Der Opa	hat	gesagt, dass ...				
	the grandpa	has	said that				

Experiment 2: Results 1 - Order

The same scoring procedure was used as in Experiment 1.

Table : Percentages of sentences produced with OS order in Experiment 2. Standard error (by participants) is given in parentheses.

	SO main clause		OS main clause	
	Subject- -Experiencer	Object- Experiencer	Subject- Experiencer	Object- Experiencer
Short	22.5 (6.3)	38.3 (7.7)	23.7 (6.5)	36.4 (6.6)
Long	42.4 (6.8)	50.6 (6.7)	38.1 (7.1)	58.6 (7.0)

Experiment 2: Results 2 - Errors

Reversal errors:

- (16) a. Den Klempner hat der Hausmeister gerufen.
b.#Der Klempner hat gesagt, dass er den Hausmeister gerufen hat.

Table : Percentages of sentences produced with semantic role reversals in Experiment 2. Standard error (by participants) is given in parentheses.

	SO main clause		OS main clause	
	Subject- -Experiencer	Object- Experiencer	Subject- Experiencer	Object- Experiencer
Short	13.2 (4.4)	5.6 (1.9)	26.4 (5.9)	9.0 (3.0)
Long	9.0 (3.0)	2.1 (1.1)	20.2 (4.6)	2.1 (1.1)

Experiment 3: Method

Participants

- 54 students at the University of Frankfurt

Materials

- 48 sentences in 8 versions each
- Factor 1: Verb type – subject-experiencer versus object-experiencer
- Factor 2: Syntactic function of antecedent in target sentence
- Factor 3: Order within the target sentence: SO versus OS

Experiment 3: Materials

Table : Sample materials for Experiment 3.

SO

Subj-exp	Der the-NOM	Enkel grandson	hat den has the-ACC	Opa grandpa	bewundert. admired
Obj-exp	Der the-NOM	Enkel grandson	hat den has the-ACC	Opa grandpa	erfreut. pleased

OS

Subj-exp	Den the-ACC	Opa grandpa	hat der has the-NOM	Enkel grandson	bewundert. admired
Obj-exp	Den-ACC the	Opa grandpa	hat der has the-NOM	Enkel grandson	erfreut. pleased

Subject prompt:	Der Enkel the grandson	hat gesagt, has said	dass ... that
Object prompt:	Der Opa the grandpa	hat gesagt, has said	dass ... that

Experiment 3: Results 1 - Order

The same scoring procedure was used as in Experiment 1.

Table : Percentages of sentences produced with OS order in Experiment 3. Standard error (by participants) is given in parentheses.

	SO main clause		OS main clause	
	Subject- -Experiencer	Object- Experiencer	Subject- Experiencer	Object- Experiencer
S-Ante	0	0	0	0
O-Ante	35.3	44.4	36.1	47.2

Experiment 3: Results 2 - Errors

Reversal errors:

- (20) a. Den Klempner hat der Hausmeister gerufen.
b.#Der Hausmeister hat gesagt, dass ihn der Hausmeister gerufen hat.
- (21) a. Den Klempner hat der Hausmeister gerufen.
b.#Der Klempner hat gesagt, dass er den Hausmeister gerufen hat.

Table : Percentages of sentences produced with OS order in Experiment 3.
Standard error (by participants) is given in parentheses.

	SO main clause		OS main clause	
	Subject- -Experiencer	Object- Experiencer	Subject- Experiencer	Object- Experiencer
S-Ante	6.4	15.7	26.3	30.6
O-Ante	5.7	8.4	21.8	16.3

Case Study 1: Summary

Order

- Verb meaning/thematic roles affected order independently of animacy.
- Weight affected order in addition to verb meaning/thematic roles.

Errors

- Reversal errors occur with both subject- and object-experiencer verbs.
- Reversal errors occur with both subject- and object antecedents.
- They are probably not specific for psych-verbs, but this has not yet been tested.

Case Study 2: Introduction

The results so far show that . . .

- . . . word order is affected both by animacy and by thematic roles.
- . . . the influence of thematic roles is somewhat weaker than the effect of animacy.

Caveats:

- So far, the conclusions rest on a single pair of thematic relations – experiencer and theme.
- So far, the conclusions rest on a single syntactic configuration – object pronouns in the middlefield.

Question:

- Do the same conclusions emerge when we look at other semantic roles and other syntactic configurations?

Experiment 4

Experiment 4 is joint work with Vasiliki Koukouloti (Uni. of Frankfurt)

- What is the relative ranking of animacy information and thematic role information?
- What is the relative ranking of lexical-conceptual constraints and syntactic constraints (subject first)?

- (22) a. Den Peter stört das Buch. +a < -a, exp < them
the P. bothers the book
'The book bothers Peter.'
- b. Den Peter stört der Autor. exp < them
the P. bothers the author
'The author bothers Peter.'
- (23) a. Der Wirt hat den Wanderer gewarnt. ag < theme
the landlord has the hiker warned
'The landlord warned the hiker.'
- b. Das Geräusch hat den Wanderer gewarnt. +a ← -a, ag < theme
the sound has the hiker warned
'The sound warned the hiker.'
- c. Den Wanderer hat das Geräusch gewarnt. +a < -a, ag ← theme
the hiker has the sound warned
'The sound warned the hiker.'

Experiment 4: Materials

Material:

(24) Action verb

a. Inanimate subject

(i) SO-presentation order:

Creme – Patient – pflegen (cream – patient – care-for)

(ii) OS-presentation order:

Patient – Creme – pflegen (patient cream care-for)

b. Animate subject

(i) SO-presentation order:

Pfleger – Patient – pflegen (nurse – patient – care-for)

(ii) OS-presentation order:

Patient – Pfleger – pflegen (patient nurse care-for)

Experiment 4: Materials

Material:

- (25) Object-Experiencer psychverb
- a. Inanimate subject
 - (i) SO-presentation order:
Gedicht – Lehrer – amüsieren (poem – teacher – amuse)
 - (ii) OS-presentation order:
Lehrer – Gedicht – amüsieren (teacher – poem – amuse)
 - b. Animate subject
 - (i) SO-presentation order:
Clown – Lehrer – amüsieren (clown – teacher – amuse)
 - (ii) OS-presentation order:
Lehrer – Clown – amüsieren (teacher – clown – amuse)

Experiment 4: Method

Participants: 24 Students of the University of Frankfurt

Materials: 28 triples consisting of two nouns and a verb

Procedure: Constrained Production

- The sentence fragments appear on the screen, one below the other.
- Participant mentally forms a sentence; function words may be added, but no content words.
- When the participant has formed a sentence, he/she presses a key on the keyboard. This triggers a tone, which is the signal to orally produce the sentence.

Scoring

- Participants' utterances are recorded.
- Sentences are scored for order and voice (in case they are correct)
- Non-active sentences were produced rarely and are not included in the following analysis.

Experiment 4: Results

Results

Table : Percentage of clauses with OS order

	Handlungsverb		OE-Psychverb	
	Animate	Inanimate	Animate	Inanimate
SO presentation order	0	1.4	3.2	4.6
OS presentation order	0	4.7	5.8	29.0

Experiment 5

Experiment 5 is from the master thesis (in progress) of Yvonne Portele (University of Frankfurt)

Questions

- How does context affect the ordering of the arguments of psych-verbs?

Experiment 5: Materials

Material:

Context:

- (26) Der Orchesterleiter betritt zum ersten Mal die immense Konzerthalle und ist beeindruckt von dem Raum, in dem viele Zuschauer Platz finden.
The conductor enters the huge concert hall for the first time and is impressed by the room, which can accommodate a large audience.
- (27) a. Er beurteilt den Konzertsaal als sehr hochwertig.
He.NOM judges the.ACC concert-hall as very high-quality.
b. Den Konzertsaal beurteilt er als sehr hochwertig.
The.ACC concert-hall judges he.NOM as very high-quality.

Sentence fragments:

- (28) SO: Orchesterleiter - Bühne - bewundern (conductor - stage - admire)
OS: Bühne - Orchesterleiter - bewundern
- (29) SO: Bühne - Orchesterleiter - faszinieren (stage - conductor - fascinate)
OS: Bühne - Orchesterleiter - faszinieren

Experiment 5: Results

Results

Table : Percentage of clauses with OS order

	SE-Psychverb		OE-Psychverb	
	SO Prime	OS Prime	SO Prime	OS Prime
SO presentation order	3	6	19	17
OS presentation order	4	4	35	35

Case Study 2: Summary

- In main clauses, there is strong subject-first bias.
- It needs several constraints working together in favor of OS in order to overcome the S-first bias.

The Case Puzzle – Introduction

- (30) The case hierarchy (partial)
Nom > Acc > Dat

For ditransitive verbs, the case hierarchy is overridden by the animacy hierarchy:

- (31) ... dass der Zauberer dem Lehrling einen Besen gegeben
that the wizard the apprentice a broom given
hat.
has
'... that the wizard gave the apprentice a broom.'

When animacy is held constant, the case hierarchy becomes visible (Häussler & Bader, 2011):

- (32) ... dass man Mozart Haydn vorzieht.
that one M. H. prefers
'that one prefers Mozart to Haydn.'

The Case Puzzle

The filler sentences of Experiment 4 contained a further experiment that included dative object-experiencer verbs:

(33) Experiment 4

- a. Den Kritiker hat der Film erfreut.
the.ACC critic has the.NOM film pleased
- b. Der Film hat den Kritiker erfreut.
the.NOM film has the.ACC pleased.

(34) Filler experiment

- a. Dem Kritiker hat der Film gefallen.
the.DAT critic has the.NOM film pleased.
- b. Der Film hat dem Kritiker gefallen.
the.DAT film has the.NOM critic pleased

Object	Presentation order	% OS
Acc	SO	5
Acc	OS	29
Dat	SO	31
Dat	OS	39

Conclusions

Major findings:

- Animacy thematic roles and case all contribute to the ordering of experiencer arguments.

This does not set psych-verbs apart from other types of verbs:

- Linearization of ditransitive verbs also shows clear effects of animacy and thematic roles.
- This is the reason why most clauses with OS order are passive clauses.

(35) ... dass dem Kind ein Buch geschenkt wurde.
that the child a book given was
'that a book was given to the child.'

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