

Propositional correlates in German: towards a unified account

Kerstin Schwabe

ZAS Berlin

schwabe@zas.gwz-berlin.de

Aim of the talk

- ❑ To argue against the claim that correlates are homonymous in that they are either "proforms" relating to a statement or merely "place holders".
- ❑ To present a proposal for a unified syntactic and semantic analysis of correlate constructions with predicates embedding *dass*-clauses.
- ❑ To show that correlates modify the meaning of the matrix predicate.

1. Introduction

1.1 Notion of correlate

A correlate relates to an abstract object, a statement, which is expressed by an associated clause. The correlate is related to its associated clause internally. We distinguish between syntactic and semantic correlates

➤ **A syntactic correlate** relates to an associated proposition that is a canonically realized clausal argument:

- 1) Max hat **es** bedauert, [dass Lea krank ist].
Max has it regretted that Lea ill is
- 2) Sicher ist **es** schade, [dass Lea krank ist].
certainly is it a pity that Lea ill is
- 3) Max hat sich **darüber** gefreut, [dass Lea glücklich ist].
Max has REFL ProPP enjoyed that Lea happy is

➤ **A semantic correlate** relates to a propositional argument which is realized non-canonically.

4) Max freut sich **darüber**, [wenn Lea glücklich ist].

Max enjoys REFL ProPP if Lea happy is

5) Max bedauert **es**, [wenn Lea traurig ist].

Max regrets it if Lea sad is

6) Gieser rühmte sich sogar **damit**, er habe die Beschaffung eines

Gieser prides REF even ProPP he has.KONJL the provision of a

bestimmten Konkurrenzgerätes gestoppt.

particular rival instrument stopped DWDS Zeit 1991

7) Und wer dagegen war, mußte sich immer absichern, daß es nicht herauskam

and who ProPP was had himself always cover that it not came out

und fand man einen, der auch dagegen war, dann sicherte sich der erstmal ab. DWDS Zeit 1978

➤ **es-correlate**

- It realizes a complement of a verbal head.
 - internal argument (DO) ⇒ ACC
 - external argument (S) ⇒ NOM
 - *es*-correlates are mostly optional
 - **obligatory** correlates: *angehen* 'start', *einrichten* 'see to it', *entbehren* 'do without', *hinbringen* 'manage', *hergeben* 'allow', *richten* 'manage', *wagen* 'dare', *ändern* 'change', *satt haben* 'get sick of'

➤ **ProPP**

- It is a PP that is either a
 - complement of a verbal head or
 - a supplement
- It has a prepositional and a pronominal part. The pronominal part is specified by the associated clause. The pronominal part and its associated clause have an indirect argument status. They are oblique.

$[_{V'} [_{PP} \text{ProPP CP}] V^0] \quad \Rightarrow \quad \text{OBL}[\%]$

- ProPPs are either optional or obligatory
davor zittern 'be terrified', (*darüber*) *triumphieren* 'triumph'

❖ Verb classes in terms of argument linking

- Predicates with propositional NOM-arguments
 - *es wahr sein* 'be true', *es durchsickern* 'filter through', *es erstaunen* 'astonish', ...
- Predicates with propositional ACC-arguments
 - *es bedauern* 'regret', *es glauben* 'believe', *es hoffen* 'hope', ...
- Predicates with propositional GEN-arguments
 - *dessen schuldig sein* 'be guilty', *dessen sicher sein* 'be sure', *dessen verdächtigen* 'suspect', *dessen belehren* 'instruct', *sich dessen vergewissern* 'make sure', ...
- Predicates with propositional DAT-arguments
 - *dem entsprechen* 'correspond', *dem widersprechen* 'contradict'
- Predicates with propositional OBL(ique)-arguments
 - *sich darüber freuen* 'enjoy', *darüber nachdenken* 'think about', ...
- Predicates with propositional ZERO-arguments, i.e. arguments that cannot occur with a correlate
 - *zischen* 'hiss', *raunen* 'whisper', *sich weigern*, ...
- Predicates with GEN- or OBL-arguments
 - *dessen/ darüber belehren* 'instruct', ...
- Predicates with ACC- or OBL-arguments
 - *es/daran glauben* 'believe', *es/davon hören* 'hear'

1.2 Distribution of *es*-correlates and ProPPs

▪ Subject-*es*

- 70% of nearly 300 subject clause embedding predicates exhibit an *es*-correlate. This is due to the requirement that the pre-field has to be filled.

8) Um so mehr erstaunt (es), wieviel Anteilnahme ... sie ... erfuhr.

the more astonishes it how much interest she got

DWDS Zeit 1992

9) Es sickerte bald durch, daß er die ganze Ansprache in seiner Schiffskabine

it filtered soon through that he the whole speech in his cabin

selbst verfaßt hatte. himself written had

DWDS Zeit 1959

▪ **Object-es**

- 53% of 784 direct object clauses embedding predicates are exemplified with *es*-correlates

10) Er gibt keine Ruhe, bis wir **(es) merken**, wer und was er für uns ist und ...
he gives no rest until we it realize who and what he for us is and
...

GBS Barth 1979

11) Ich **finde (es) wunderbar**, dass ... nicht alles vorgeschrieben ist.
I think it wonderful that not all prescribed is

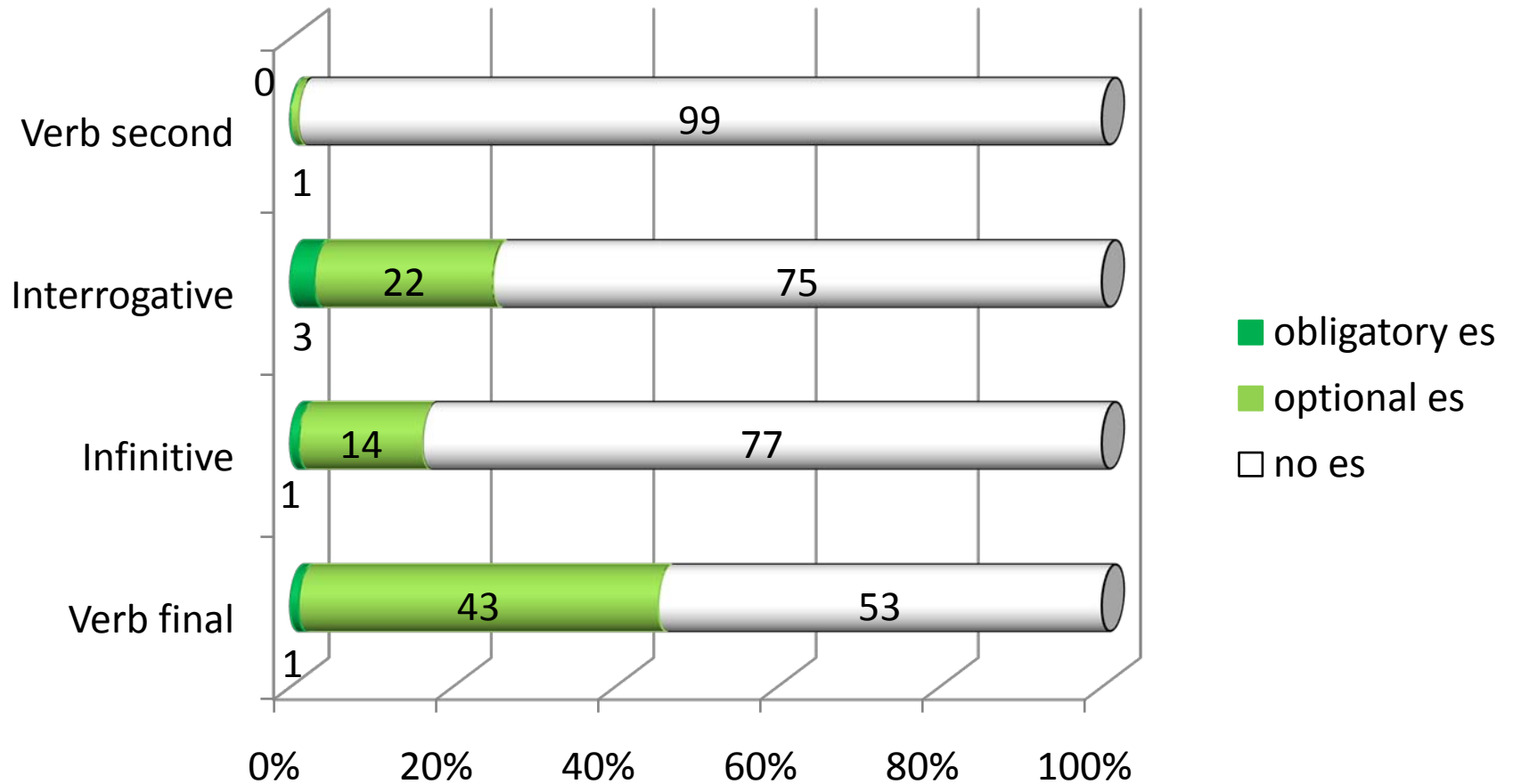
DWDS BZ 1999

12) Als Christ **akzeptiere ich (es), wenn** jemand bereut. as christian accept
I it if anyone regrets

DWDS BZ 1976



Selection patterns of predicates in terms of exemplified Object-es-correlates (1720 predicates)



▪ ProPP-predicates

• Predicates with optional ProPP (33%)

- 13) Bahnchef Hartmut Mehdorn insistiert [**darauf**], dass man Netz und
Railway chef Hartmut Mehdorn insists ProPP that one network and
Betrieb nicht trennen kann.

service not separate can DWDS Zeit 2001

- 14) Niemand strengt sich (**dafür**) an, dass es ihm hinterher schlechter geht.
no one tries REFL ProPP that he afterwards worse feels
DWDS Zeit 2004

• Predicates with obligatory ProPP (66%)

- 15) Jetzt büßen die USA **dafür**, dass sie Militärdiktaturen gestützt haben.

Now pay the US ProPP that they military dictatorships supported have DWDS BZ
2000

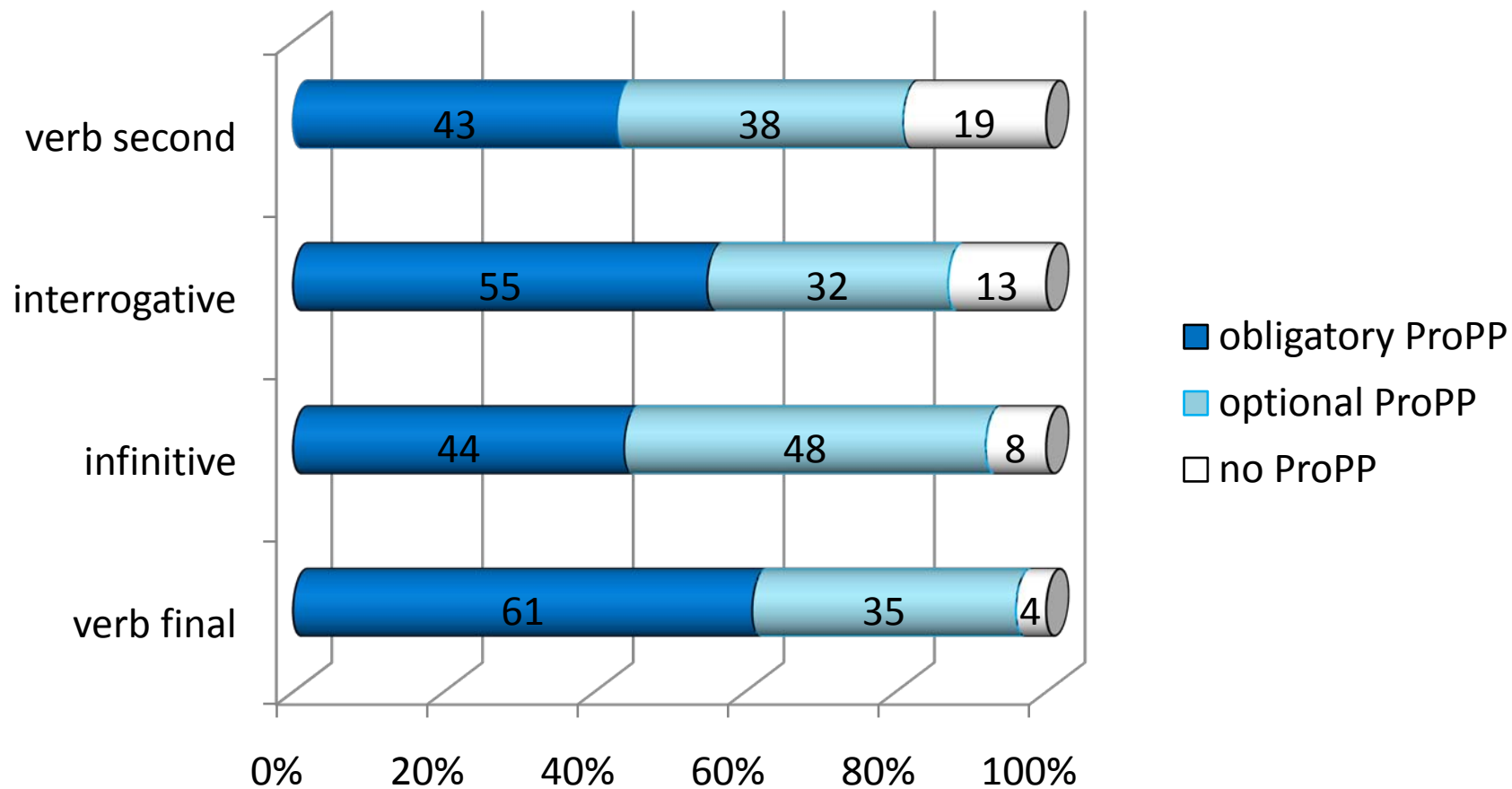
- 16) Gegenwärtig arbeiten wir **daran**, daß für jeden Ort, ... ein Beauftragter ...

Now work we ProPP that for every place a representative
gewonnen wird.

found will be DWDS K-Ge 1983



Selection patterns of predicates in terms of ProPPs (1720 predicates)



1.3 Syntactic approaches

| | A1 Uniform analysis | A2 Hybrid analysis |
|-------|---|---|
| es | <p>$[_{N'} [_{N_0} \text{es}] \text{CP}]$ Müller 1995</p> <p>$[_{DP} [_{DP} \text{es}] \text{CP}]$ Zimmermann 1993, Sternefeld 2006</p> | <p>$[_{V'} [_{V'} \text{es } V^0] \text{CP}]$ F.-Hansen 1981, Haider 1995, Zifonoun et al. 1997, Schwabe 2010</p> <p>$[_{DP} [_{D_0} \text{es}] \text{CP}]$ or $[_{CP} [_{CP} \dots [_{V'} \text{es } V^0]] \text{CP}]$ Sudhoff 2003, (Axel 2009, Frey 2010, Zimmermann 2011)</p> |
| ProPP | <p>$[_{PP} [_{PP} \text{ProPP}] \text{CP}]$ Müller 1995, Reis 1997, Sternefeld 2006</p> | <p>$[_{PP} [_{PP} \text{ProPP}] \text{CP}]$ or $[_{V_0} [_{V_0} \text{ProPP } V^0] \text{CP}]$ F.-Hansen 1981, Zifonoun et al. 1997, Haider 2010 Schwabe 2010</p> <p>$[_{PP} [_{PP} \text{ProPP}] \text{CP}]$ or $[_{PP} [_{PP} \text{PROPP}] \text{CP}]$ Breindl 1985, Axel 2009</p> |

place holder

proform

place holder

relating element

❖ Details about A2: Correlates are homonymous

○ *es* - observations

a. Predicates where *es* is part of an f-marked [Schwarzschild 1999] constituent (17) and predicates where this is not possible (18).

17) A: Any news (about Max)?

the matrix subject cannot be part of an f-marked constituent

B: Max [_F bereut **es** [_F dass er **MIA** angerufen hat]]

Max regrets it that he Mia called has

new information focus

➤ "place holder": *bedauern*-type (anaphorical and cataphorical)

18) A: Any news?

B: *Max [_F hat **es** erzählt [_F dass er Mia angerufen hat]]

Max has it told that he Mia called has

19) A: Who has told that he has called Mia?

B: [_F Max] hat **es** erzählt, dass er Mia angerufen hat

➤ "proform": *behaupten* –type (only anaphorical)

- cf. Pütz' (1975), Sudhoff's (2003) intuitive observation and Tompelt et al.'s (2011) experimental confirmation – cf. Slides (15-16).

b. Place holder verbs are inconsistent with predicates that allow embedded root phenomena (Verb second, modal particles, Left-dislocation, etc.) and wh-extraction – cf. Sudhoff 2003, Frey 2010.

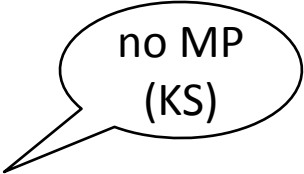
20) Max *bedauert/behauptet, sie darf bleiben.

Max regrets/claims she may rest

21) Wen behauptet /*bedauert Max, dass Lea angerufen hat.

who regrets/claims Max that Lea called has

Max



no MP
(KS)

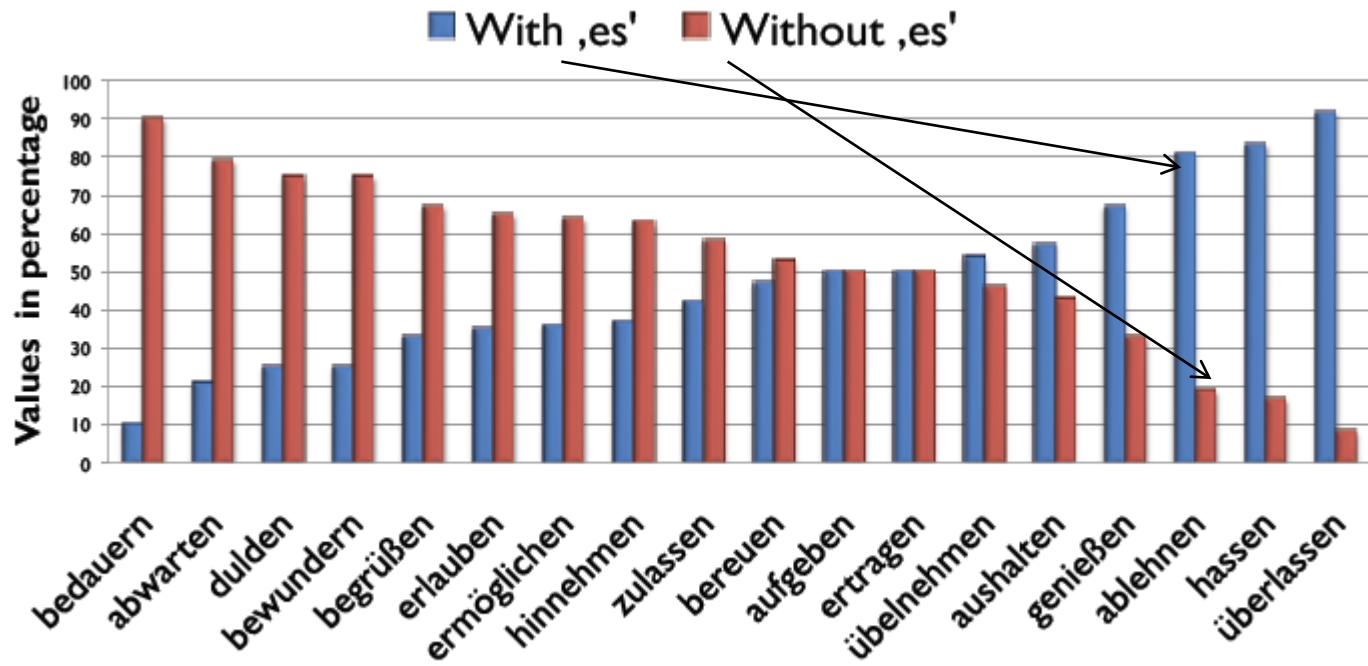
Karl hat es oft versucht/*bedauert, dieses Argument eben doch zu verstehen

Karl hat it often tried / regretted this argument MP MP to understand

Max *bedauert/behauptet, die Maria, dass die nach Grönland gereist ist.

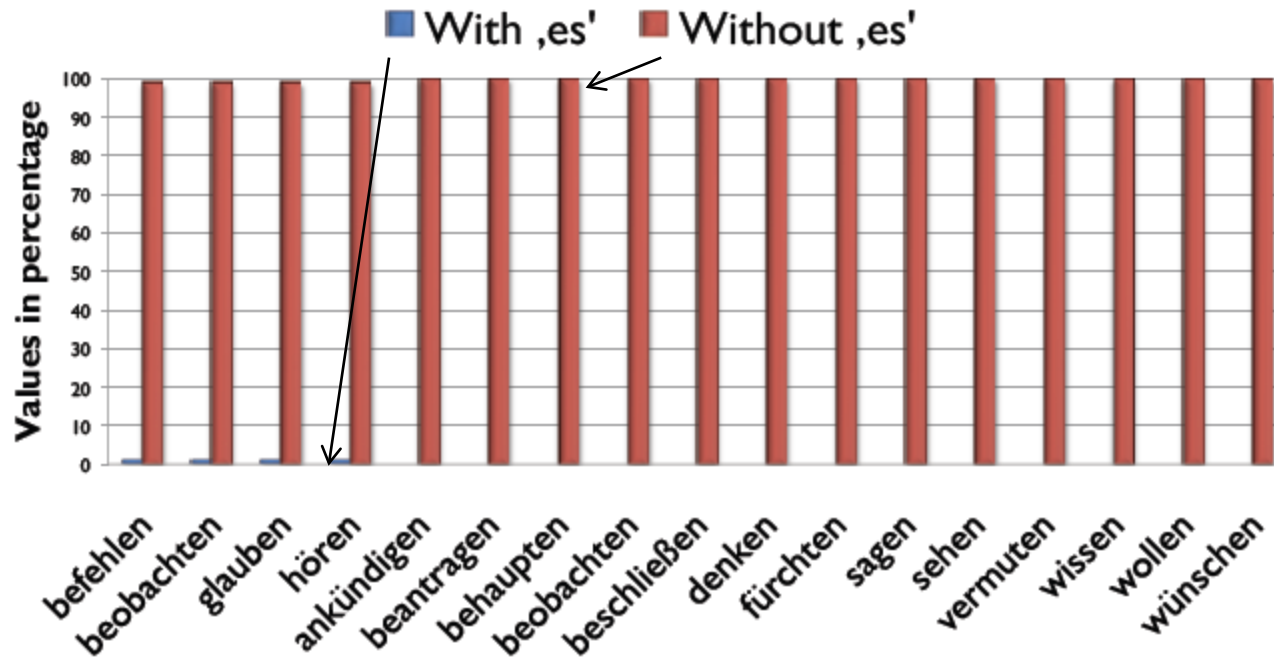
Max regrets/claims the Maria that she to Greenland driven is (Frey 2011)

c. According to Trompelt et al.'s (2011) corpus research data, "place holders" are much more often used than proforms – cf. the diagrammes on slides 15 and 16.



place holder

Verbs



Verbs

proform

○ **ProPP**

a. Predicates where the ProPP can be part of an f-marked constituent

22) A: Any news?

new information focus

B: Max [_F hat sich **darüber** gefreut, [_F dass Jo LEA angerufen hat]]

Max has ProPP enjoyed that Jo Lea called has

➤ "place holder": *darüber freuen*-type (P is accented – cf. Breindl 1089)

b. Predicates where the ProPP cannot be part of an f-marked constituent

23) A: Any news?

B: *Der Einsatz [_F beruht DARAUF, [_F dass der Diktator sein Volk angegriffen hat]]

the operation is based ProPP that the dictator his puple attacked has

➤ Bezugselement (proform): *Daran liegen*-type (pro is accented – cf. Breindl 1989)

But:

contrast focus

24) B: *Der Einsatz beruht [_F DARAUF] [_F dass der Diktator sein Volk angegriffen hat]

B': Der Einsatz [_F beruht **dARAUF**, [_F dass der Diktator sein VOLK angegriffen hat]]

new information focus

1.4 Arguments against A2: "correlates are homonymous"

- i. Provided that there are "es- and ProPP-place holders" and that predicates licensing es-"place holders" do not embed root phenomena (25), one can observe that predicates licensing ProPP-"place holders" can embed root-phenomena (26-27).

25) *Frank bedauert (es), Maria ist krank.

Frank regrets it Maria is ill

26) Gieser rühmte sich sogar DAMIT/daMIT, er habe die Beschaffung eines
Gieser prides REF even ProPP he has.KONJ the provision of a
bestimmten Konkurrenzgerätes gestoppt.

particular rival instrument stopped DWDS Zeit 1991

27) Fünfzig Jahre nach dem deutschen Völkermord fürchten sich Deutsche
davor, ihre Landsleute könnten noch immer - oder schon wieder - verführbar
sein.

- ii. It is said that place holders do not refer and proforms do. But it is not explained what it means that place holders do not refer.

iii. An associated clause related to a "place holder" is said to be in the post-field, an associated clause related to a proform, however, is said to be right-dislocated like V2 clauses – cf. Sudhoff 2003, Frey 2010. This claim that the associated clause of "proforms" is right-dislocated has to be verified.

28) Ich finde es wunderbar, dass ... nicht alles vorgeschrieben ist.

I think it wonderful that not all prescribed is DWDS BZ 1999

29) Ihr habt wohl geglaubt, ich komme nicht mehr?

you have MP believed I come not anymore

30) Frank hat es geglaubt, dass Maria kommt.

Frank has it believed that Maria comes

➤ What are the syntactic and phonological criteria that force the bipartite classification of *es* and ProPP?

- The ability of "place holders" to relate to an f-marked associated clause can also be explained by the semantics of the matrix predicate.

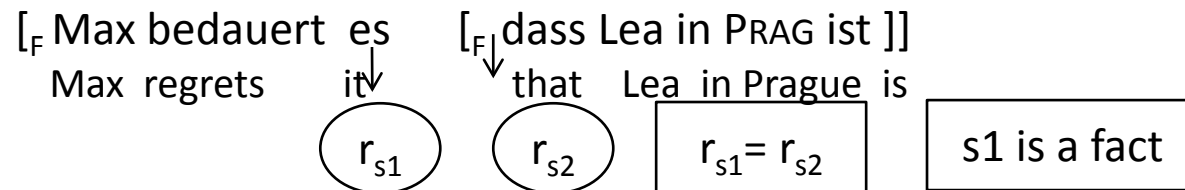
2. An alternative, a semantic approach

2.1 Notion of correlate

❖ *Es*

- *Es* relates to a statement which is either the representation of a true or false state of affairs or of a logical tautology or contradiction. The associated clause also relates to a statement, the statement it represents. Both statements are identical.
- The statement related to by the *es* can be discourse-given. It can be discourse-new if the statement it relates to is a fact.
- As for *bedauern*-predicates, the statement *es* relates to is a fact, i.e. the statement *es* relates to can be a discourse-new associated clause.

31) Any news?



[_F Lea is in Prague] and [_F Max regrets it].

- As for *behaupten*-predicates, the statement *es* relates to is not a fact. Therefore, it can only relate to a statement represented by a discourse-given clause .

32) Any news?

*_[F] Max hat es behauptet _[F] dass er Mia angerufen hat]]

Max has ↓ it claimed ↓ that he Mia called has

r_{s1}

r_{s2}

$r_{s1} = r_{s2}$

s1 is not a fact

33) Who has claimed that he has called Mia?

_[F] Max] hat es behauptet, dass er Mia angerufen hat

34) *_[F] Max zieht es vor _[F] dass Lea in PRAG ist]]

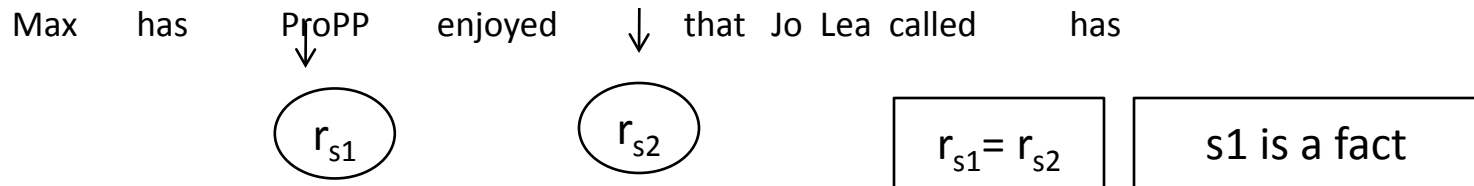
Max prefers it that Lea in Prague is

s1 is false

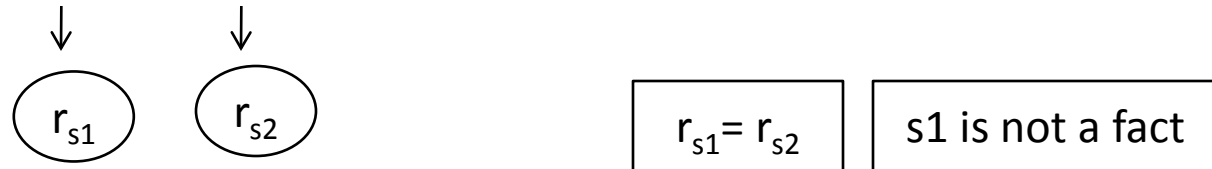
❖ **ProPP**

- ThProPP relates to a statement which is either the representation of a true or false state of affairs or of a logical tautology or contradiction. The associated clause also relates to a statement, the statement it represents. Both statements are identical.
- Predicates with ProPPs that are part of an f-marked constituent are hardly restricted compared to predicates with *es*-correlates.

35) Max [_F hat sich **darüber** gefreut, [_F dass Jo LEA angerufen hat]]



Max [_F freut sich darauf, [_F dass Jo LEA anruft]]



❖ Syntactic representation

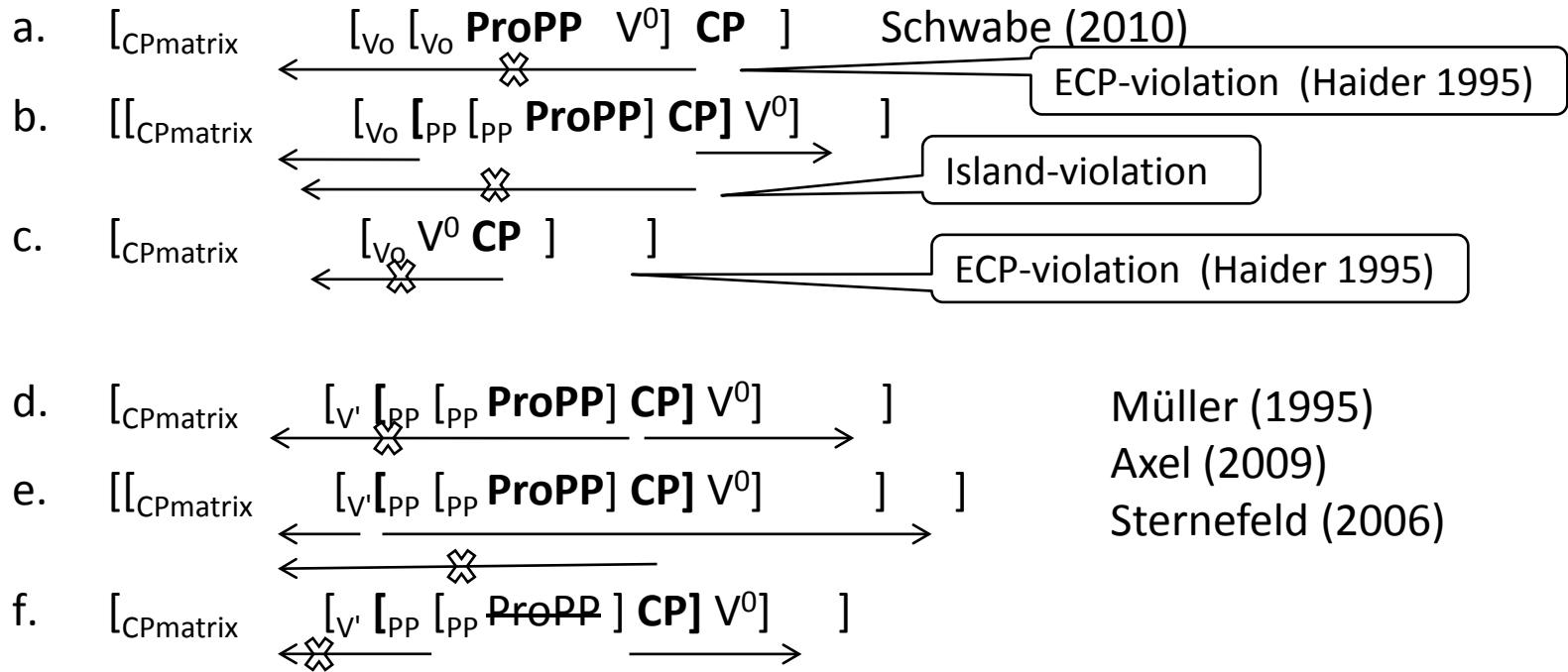
○ *Es*-constructions

- a. $[_{\text{CPmatrix}} [_{\text{V}'} [_{\text{V}'} \text{es } V^0] \text{ CP}]]$ Schwabe (2010)
- b. $[_{\text{CPmatrix}} [_{\text{V}'} \text{ CP } V^0]]$ ECP-violation (Haider 1995)
- c. $[_{\text{CPmatrix}} [_{\text{V}'} [_{\text{DP}} [_{\text{D}^0} \text{es}] \text{ CP}] V^0]]$ Sudhoff (2003:87)
- d. $[_{\text{CPmatrix}} [_{\text{V}'} [_{\text{DP}} [_{\text{D}^0} \emptyset] \text{ CP}] V^0]]$
-

As to *c.* and *d.*,

- i. No justification for the empty D^0 -head
- ii. Why can a DP with an empty D^0 -head be topicalized, but a DP with an *es*-head cannot?

○ **ProPP-constructions**



- i. Why can a PP with an empty P not be topicalized, whereas a DP with an empty es-correlate can?
- ii. Why do some predicates allow for ProPP-deletion and others do not?

- ***Preliminary conclusion:*** Correlates are proforms relating to a statement that is either discourse-given or discourse-new. If the statement *es* relates to is a fact, the associated clause can be new. If the statement *es* relates to is not a fact, the associated clause has to be given. A syntactic distinction between place holders, on the one hand, and proforms, on the other, is not necessary.

2.2 Predicates licensing f-marked associated clauses

- Predicates licensing an *es* in an f-marked constituent have to be factive [A (not) verb dass $\sigma \Rightarrow \sigma$],

36) Any news?

Max [_Fbedauert es [_F dass Lea in PRAG ist]] 'Lea is in Prague' is **true**
Max regrets it that Lea in Prague is
Lea is in Prague and Max regrets it.

but

37) Any news?

Max [_F weiß es [_F dass Lea in Prag ist]]
Max knows it that Lea in Prague is 'Lea is in Prague' is **true**

- *Es* can be in an f-marked constituent if the predicate with *es*, i.e. *pred-es*, is not **objectively based** and if the **consistency degree** of *pred-es* is {v}.
- Objectively based predicates are predicates that are objective without a correlate – cf. *wissen/hören/sehen dass* 'know/hear/see' are objective and *es wissen/es hören/es sehen* are objectively based.

❖ Objective predicates

Definition: a predicate *verb dass/ob* is called **objective** if **either**

- i. *verb dass* is consistent with *verb* is **SI** and $\cup\{\text{val}(\text{verb}, \alpha, \aleph) \mid \alpha \in \aleph\} = \{\sigma \mid \sigma \text{ is valid in } \aleph\}$ **or**
- ii. *verb dass* is consistent with *verb* is **AI** and $\cup\{\text{val}(\text{verb}, \alpha, \aleph) \mid \alpha \in \aleph\} = \{\sigma \mid \sigma \text{ is invalid in } \aleph\}$ **or**
- iii. *verb dass/ob* is consistent with *verb* is **NI** and $\cup\{\text{val}(\text{verb}, \alpha, \aleph) \mid \alpha \in \aleph\} = \text{the set of all } \sigma\text{'s.}$

— The definition implies that for every σ or $\neg\sigma$, there is an individual x such that $x \text{ verbs dass/ob } \sigma$ or there is an individual x such that $x \text{ verbs dass/ob } \neg\sigma$, in at least one constellation \aleph .

SI: *semi-implicative*

$x \text{ verb dass } \sigma \Rightarrow \sigma$

AI: *anti-semi-implicative*

$x \text{ verb dass } \sigma \Rightarrow \neg\sigma$

NI: *negation-invariant*

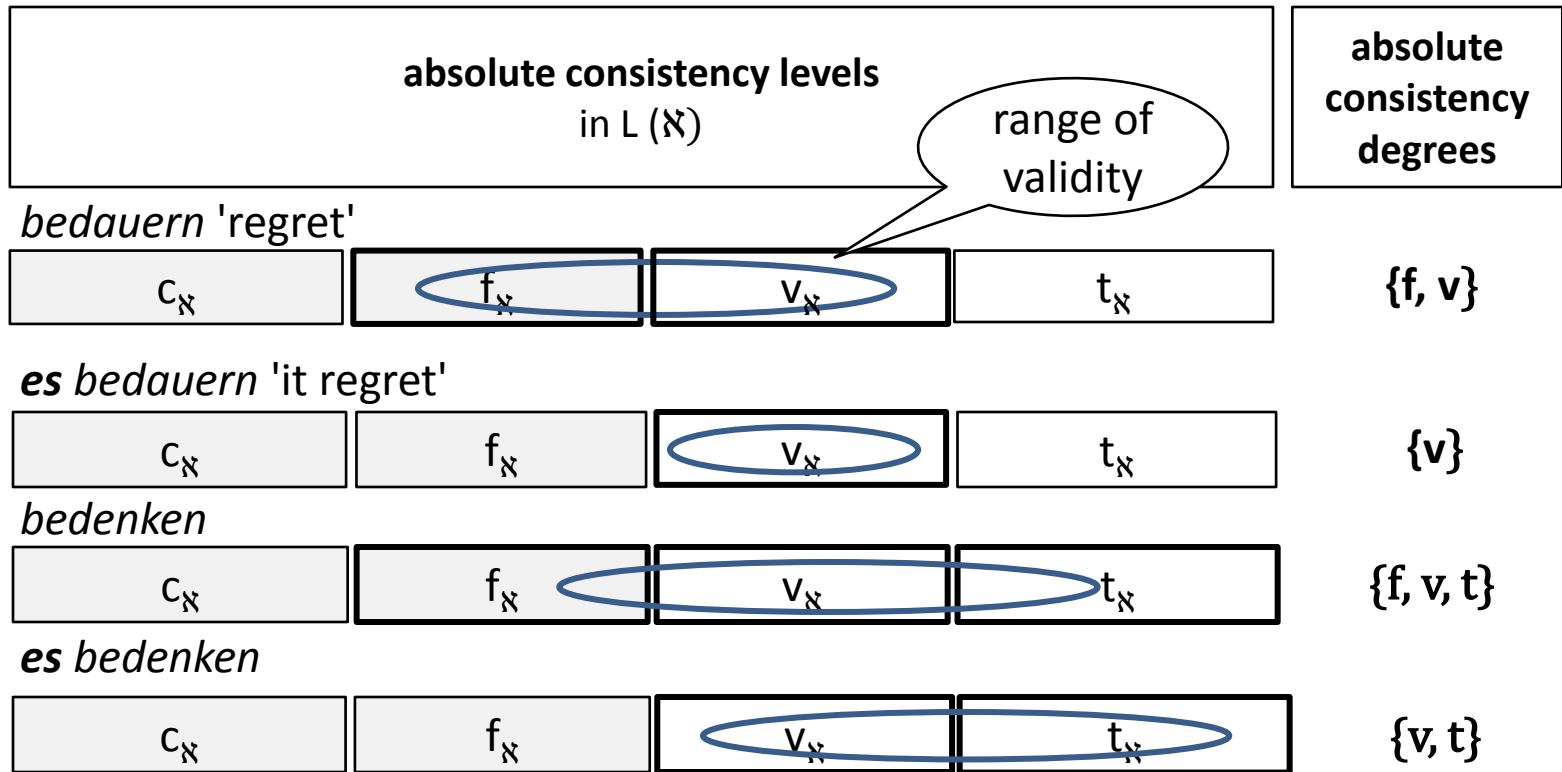
$x \text{ verb dass/ob } \sigma \Leftrightarrow x \text{ verb dass/ob } \neg\sigma$

without es in f-marked constituent

- i. **SI**-objective predicates: *wissen dass* 'know', *hören dass* 'hear', but not *beweisen* 'prove',
- ii. **AI**-objective predicates: *sich irren* 'be mistaken, but not *widerlegen dass* 'refute'
- iii. **NI**-objective predicates: *fragen ob* 'inquire', *untersuchen ob* 'investigate' but not *kontrollieren ob* 'check'.

❖ Consistency degrees for predicates with es: Absolute consistency degrees

- Predicates with possible *es*-correlates like *bedauern* 'regret' relate their potential truth value to the so-called **consistency levels** of embedded proposition (σ). Consistency levels are:
 - i. the set of propositional tautologies (**t**), e.g. ' $\tau \vee \neg \tau$ '.
 - ii. the set of valid embedded statements which are not propositionally tautological (**v**),
 - iii. the set of false statements which are not contradictory (**f**), and
 - iv. the set of contradictions (**c**) – cf. slide 29 and Schwabe & Fittler 2010.
- The **consistency degree** of a matrix predicate consists of the minimal set of *consistency levels* that, in all constellations \aleph , jointly comprehend all the embedded clauses rendering the matrix clause valid.
- A correlate can change the consistency degree of the matrix predicate. If so, it cuts away consistency levels.



$c_{\mathcal{N}}$: consists of all contra-dictions in $L[\mathcal{N}]$

$f_{\mathcal{N}}$: consists of all σ 's false in $L[\mathcal{N}]$ except the contradictions in $L[\mathcal{N}]$

$v_{\mathcal{N}}$: consists of all σ 's valid in $L[\mathcal{N}]$ except propositional tautologies

$t_{\mathcal{N}}$: consists of all absolute propositional tautologies in $L[\mathcal{N}]$

If σ is neither contradictory nor tautological, it is **contingent**.

❖ Function and impact of *es* wrt. f-marked associated clauses

- *Es* mostly alters the consistency degree of the matrix predicate. For instance, *bedauern* 'regret' turns from {f, v} to {v} & factive, i.e. it becomes semi-implicative and factive and *annehmen* 'assume' turns from {c, f, v} to {c, f}, *erreichen* 'manage', however does not change its consistency degree {v}.
- *Es* can be in an f-marked constituent if the predicate *pred-es* is not objectively based and if the consistency degree of *pred-es* is {v} – cf. *es bedauern* 'regret' CD={v} **vs.** *es wissen* 'know', which is si-objectively based, or *behaupten* 'claim' CD={c, f, v} or *widerlegen* 'refute' CD={f}.

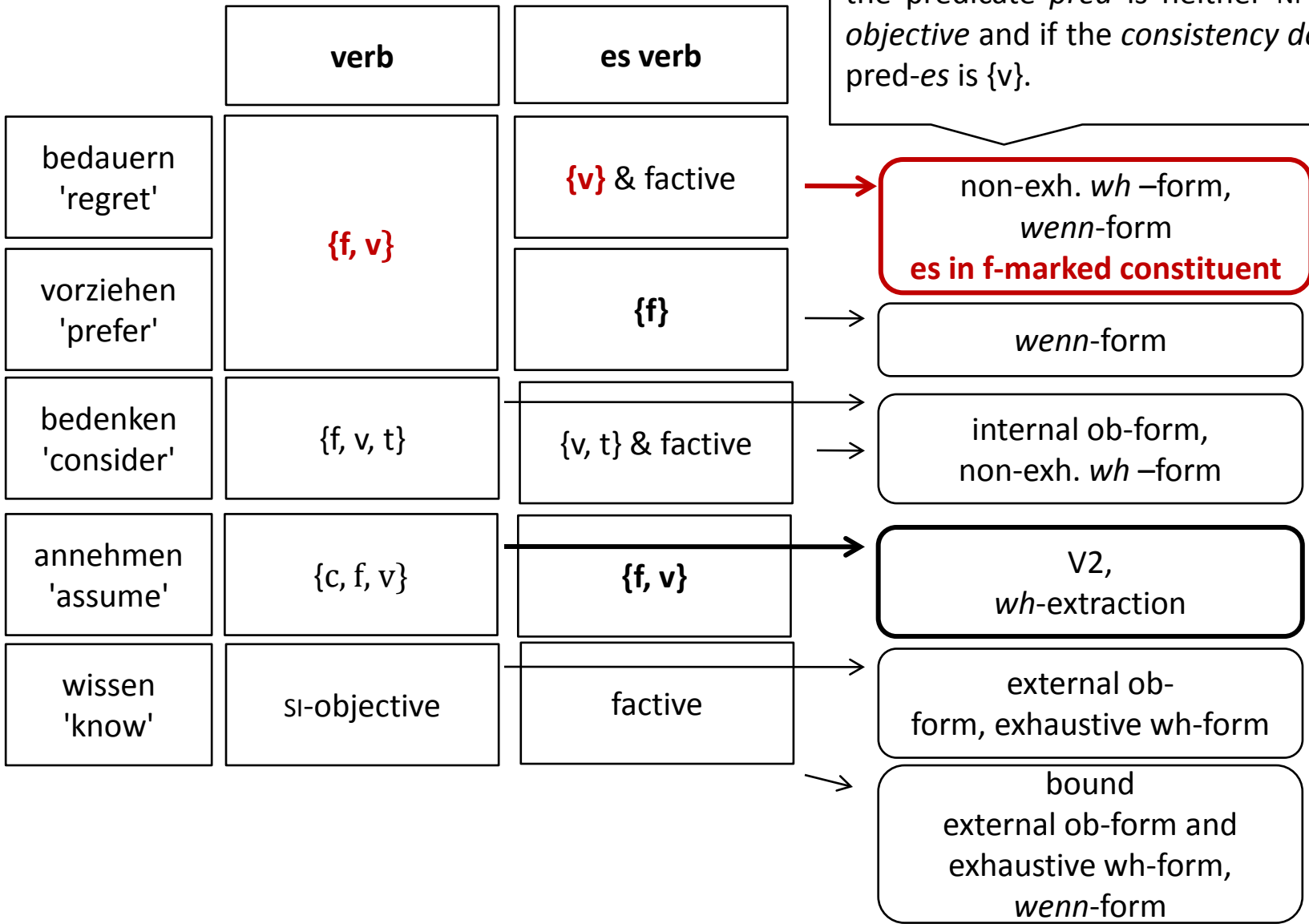
38) Max [_F bedauert **es**, [_F dass Lea in **PRAG** ist]] {v}
 Max regrets it that Lea in Prague is

- The statement is a fact which is given in the actual world.

39) Er [_F **beHAUPTet**] es, dass er sie allein geschrieben hat {f, v}
 He claims it that he it by himself written has

- The statement is contingent and given by the preceding interrogative.

Es can be in an f-marked constituent if the predicate *pred* is neither NI- nor AI-objective and if the consistency degree of *pred-es* is {v}.



❖ Consistency degrees for predicates with ProPP: Relative consistency degrees

- Predicates with possible *ProPPs* like *sich darüber freuen* 'enjoy' relate their potential truth value to logical properties of the embedded σ in connection with the set of statements the matrix-subject knows $[KN(\alpha)]$. Relative consistency levels are:
 - i. the set of propositional tautologies (τ),
 - ii. the set of embedded statements that follow from $KN(\alpha)$ and are not propositionally tautological (CNS),
 - iii. the set of statements that do not follow from $KN(\alpha)$ and do not contradict $KN(\alpha)$ [CTG], and
 - iv. the set of statements that contradict $KN(\alpha)$ (CTR)

- cf. Schwabe & Fittler (2010) and slide 33.

| | |
|--|-------------------------------------|
| relative consistency levels in the vocabulary $V(\alpha, \aleph)$ of $\text{KN}(\alpha)$ | relative consistency degrees |
|--|-------------------------------------|

a. *sich freuen* 'enjoy'

| | | | | |
|----------------------------------|----------------------------------|----------------------------------|--------------------------------|------------|
| $\text{CTR}_{\alpha \in \aleph}$ | $\text{CNT}_{\alpha \in \aleph}$ | $\text{CNS}_{\alpha \in \aleph}$ | $\text{T}_{\alpha \in \aleph}$ | {CTR, CNS} |
|----------------------------------|----------------------------------|----------------------------------|--------------------------------|------------|

b. *sich darüber freuen*

| | | | | |
|----------------------------------|----------------------------------|----------------------------------|-----------------------|-------|
| $\text{CTR}_{\alpha \in \aleph}$ | $\text{CNT}_{\alpha \in \aleph}$ | $\text{CNS}_{\alpha \in \aleph}$ | $\text{T-KN}(\alpha)$ | {CNS} |
|----------------------------------|----------------------------------|----------------------------------|-----------------------|-------|

c. *darüber nachdenken* 'think about'

| | | | | |
|----------------------------------|----------------------------------|----------------------------------|--------------------------------|----------|
| $\text{CTR}_{\alpha \in \aleph}$ | $\text{CNT}_{\alpha \in \aleph}$ | $\text{CNS}_{\alpha \in \aleph}$ | $\text{T}_{\alpha \in \aleph}$ | {CNS, T} |
|----------------------------------|----------------------------------|----------------------------------|--------------------------------|----------|

d. *sich dazu eignen*

| | | | | |
|----------------------------------|----------------------------------|----------------------------------|--------------------------------|-------|
| $\text{CTR}_{\alpha \in \aleph}$ | $\text{CNT}_{\alpha \in \aleph}$ | $\text{CNS}_{\alpha \in \aleph}$ | $\text{T}_{\alpha \in \aleph}$ | {CNT} |
|----------------------------------|----------------------------------|----------------------------------|--------------------------------|-------|

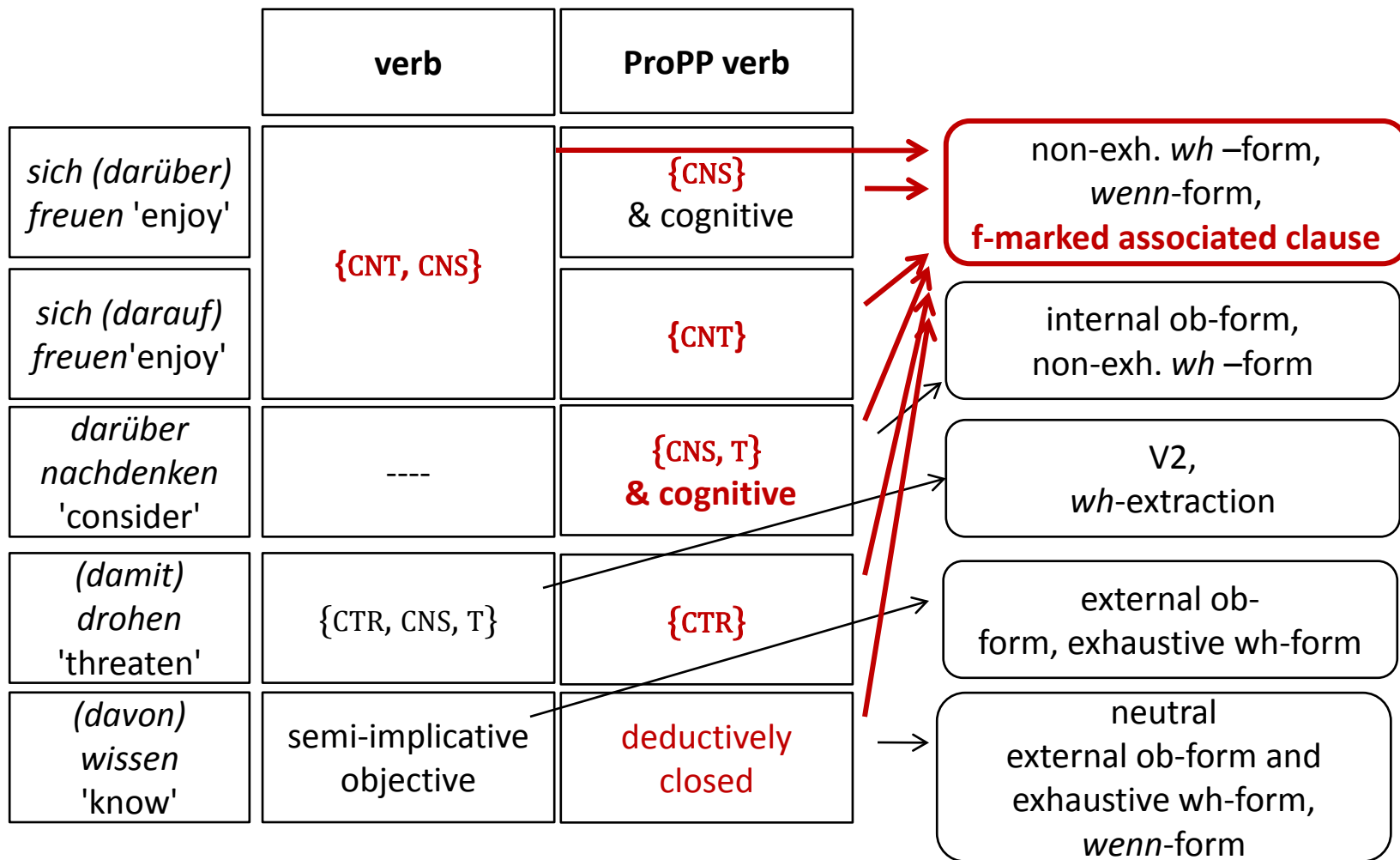
$\text{KN}(\alpha)$: set of statements α knows

$\text{CTR}_{\alpha \in \aleph}$: set of statements contradicting $\text{KN}(\alpha)$

$\text{CNT}_{\alpha \in \aleph}$: set of statements contingent with $\text{KN}(\alpha)$ in \aleph , i.e. set of statements not contradicting $\text{KN}(\alpha)$ and not being propositionally tautological

$\text{CNS}_{\alpha \in \aleph}$: set of statements following from $\text{KN}(\alpha)$ and not being propositionally tautological

$\text{T}_{\alpha \in \aleph}$: set of tautological statements



□ Summary

- The empirical phenomena subdividing the class of proposition embedding predicates into two classes, the one licensing *es* as a proform of an f-marked proposition and the other one only licensing *es* a proform of non-f-marked propositions need not necessarily lead to a subdivision of correlates into place holders, on the one hand, and proforms, on the other.
- The empirical phenomena are explainable with the help of a particular semantic property of the matrix predicate, its consistency degree:
 - *Es* can be in an f-marked constituent if *pred-es* is not objectively based and if the consistency degree of *pred-es* is {v}.
 - Predicates with ProPPs that are part of an f-marked constituent are hardly restricted compared to predicates with *es*-correlates.

1. Axel, K. (2009). (Nicht-)kanonische Nebensätze im Deutschen: synchrone und diachrone Aspekte. Habilitationsschrift, Universität des Saarlandes.
2. Breindl, E. (1989). Präpositionalobjekte und Präpositionalobjektsätze im Deutschen. Berlin: Niemeyer.
3. Fabricius-Hansen, C. (1980). Sogenannte ergänzende wenn-Sätze. Ein Beispiel syntaktisch- semantischer Argumentation. In: *Kopenhagener Beiträge zur germanistischen Linguistik*, Sonderband 1. Kopenhagen.
4. Frey, W. (2010). Remarks on correlative constructions. Handout ZAS, November 12.
5. Haider, H. (1995). Downright down to the right. In Lutz, U. & J. Pafel (eds.) *On Extraction and Extraposition in German*. Amsterdam, Philadelphia: John Benjamins, 145-271.
6. Haider, H. (2010). *The Syntax of German*. Cambridge: Cambridge University Press. Müller 1995 .
7. Pütz, H. (1986). Über die Syntax der Pronominalform 'es' im modernen Deutsch. 2., durchgesehene Auflage. Tübingen: Narr.
8. Reis, M. (1997). Zum syntaktischen Status unselbständiger Verbzweit-Sätze. In Dürscheid, Ch., Ramers, K.-H. & Schwarz, M. (eds.) *Sprache im Fokus*. Tübingen: Niemeyer, 121-144.
9. Schwabe, K. (2010). [Über sententiale Proformen und Matrixprädikate im Deutschen](#). ZAS Ms.
10. Schwabe, K. & Fittler, R. (2010). [Syntax and logical consistency conditions for German matrix predicates](#). ZAS Ms.
11. Schwarzschild, R. (1999). Givenness, AvoidF and other constraints on the placement of accent. *Natural Language Semantics* 7(2), 141-177.
12. Sternefeld, W. (2006). *Syntax. Eine morphologisch motivierte generative Beschreibung des Deutschen*. Tübingen: Stauffenburg.
13. Sudhoff, S. (2003). *Argumentsätze und es-Korrelate – zur syntaktischen Struktur von Nebensatz-einbettungen im Deutschen*. Berlin: Wissenschaftlicher Verlag.
14. Trompelt, H., Axel, K. & Holler, A. (2011). Correlative Es vs. Das in German: An Experimental Perspective. Handout from the 33. annual meeting of the DGfS. Göttingen.
15. Zifonoun, G., Hoffmann, L. & Strecker, B. (1997). *Grammatik der Deutschen Sprache*, Bd. II. Berlin, New-York: Walter de Gruyter.
16. Zimmermann, I. (1993). Zur Syntax und Semantik der Satzeinbettung. In Rosengren, I. (ed.) *Satz und Illokution*, Bd. II. Tübingen: Niemeyer, 231-251.