The German Incredulity Response Construction and the Hierarchical Organization of Constructions

Manfred Sailer
Special Research Program 441, *Linguistic Data Structures*
Nauklerstr. 35, D-72074 Tübingen, Germany
`mf@sfs.uni-tuebingen.de`
`http://www.sfs.uni-tuebingen.de/~mf/`

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1 Introduction

The Incredulity Response Construction (IRC) in (1) has been studied for English in Akmajian 1984 and for English and German (G-IRC) in Lambrecht 1990 (L90).

(1) a. Ich und mir Sorgen machen?!
I and worry 'Me worry?!'
b. Larry und Arzt?!
Larry and doctor 'Larry a doctor?!'

Akmajian 1984 tries to reduce the properties of the English IRC to a widely used phrase structure rule and general principles of the grammar. L90 argues against this approach pointing out irreducible construction-specific properties. L90 analyzes the IRC as a *formal idiom* (Fillmore et al., 1988):

> "The German IRC is made up of phrasal constituents which are perfectly ordinary with regard to their internal morphosyntactic structure but which are combined with one another in a non-ordinary, construction-specific way. To use a set of terms which are of prime importance in Construction Grammar, while the INTERNAL SYNTAX of the two major constituents is trivia, their EXTERNAL SYNTAX is a unique feature of this particular construction." (L90, p. 220)

L90 summarizes his analysis of the G-IRC in the schema in (2). TOP indicates that the entire construction is a topic, where NP and PredP have to be topic constituents. To discuss the G-IRC in more general terms, we write it schematically as in (3).

(2) German IRC: $_{\text{TOP}}[\ _{\text{NP}[+\text{nom}]}[\ldots]\ \textit{und}\ _{\text{PredP}[+\text{inf}]}[\ldots]\ ](_{\text{S}}[\ldots])$

(3) X *und* Y?!

In recent CG work, which had a noticeable impact on Head-Driven Phrase Structure Grammar (HPSG, Pollard and Sag 1994), much attention has been directed to the hierarchical organization of constructions and the inheritance of properties from more general to more specific constructions (Sag, 1997; Kay, 1998). Though Michaelis and Lambrecht 1996 give an hierarchy-based characterization of English exclamatives, they do not discuss the IRC.

We will refine L90's empirical observations about the G-IRC and show that it resists hierarchies of constructions. Rather, it is easily captured by a simple construction schema (or phrasal lexical entry)..

2 What the G-IRC is not

2.1 Coordinate Construction:

Pros: In its most usual form, there are 2 NP constituents which are connected by the usual coordination particle *und* (*and*). (see also Fleischer 1997, p. 133)

(4) Du und ein Schwimmer?!
you and a swimmer 'Do you really think you are a swimmer?!'

Cons: There can be a categorial differences between X and Y in the G-IRC. And the interpretation of the construction is that of a predication, not that of a coordination, i.e. Y(X) instead of X ∧ Y.

(5) Mein Bruder und großzügig?!/ studieren?!/ im Wald?!
my brother and generous/ go to university/ in the forest

2.2 Subject Predicate Construction:

Pros: Alternatively it might be an instance of a subject predicate construction (SPC, Fillmore 1988).

- This automatically accounts for the basic interpretation.
- The same NPs that can occur as predicates in the SPC, can occur as PredP in the G-IRC.

(6) a. Peter ist Arzt/ ein Arzt/ *guter Arzt/ ein guter Arzt/ *Dummkopf/ ein Dummkopf.
Peter is doctor/ a doctor/ good doctor/ a good doctor/ idiot/ an idiot
'Peter is a (good) doctor/ an idiot.'
b. Peter und Arzt/ ein Arzt/ *guter Arzt/ ein guter Arzt/ *Dummkopf/ ein Dummkopf.?!

(7) a. * Peter ist jeder Arzt.
Peter is every doctor
b. * Peter und jeder Arzt?!

- X must be the subject of Y:

(8) a. Meine Kinder lesen den Roman.
my children.NOM read.3PL the novel.ACC 'My children are reading the novel.'
b. Meine Kinder und den Roman lesen?!
my children.NOM and the novel.ACC read
c. * Den Roman und meine Kinder lesen?!

(9) a. Der Roman wird von meinen Kindern gelesen.
the novel.NOM is by my children read 'The novel is read by my children.'
b. Der Roman und von meinen Kindern gelesen werden?!
c. * Von meinen Kindern und der Roman gelesen werden?!

Cons:

- In German, a finite verb is needed for having an NP subject with nominative case in a SPC.

(10) * Peter ein guter Arzt.
Peter a good doctor

- Infinitives in German do not accommodate overt nominative subjects.

(11) a. Du liest das Buch.
you read.FIN the book 'You are reading the book.'
b. * Du das Buch lesen.
you the book read.INF

Exception: Some imperatives which use infinitival verbs (12). **But:** Here, the nominative NP is optional and might be seen as an apposition.

(12) (Der Nächste) bitte eintreten!
the next one.NOM please enter.INF

- In general, in German, an infinitival VP cannot form a constituent with its subject.

⟹ While Y is certainly a predicative constituent, the SPC in German requires a finite verb as its predicate.

2.3 Copula Construction:

We could assume that for non-infinitival Y, the G-IRC accepts a subset of the predicative categories that occur with the copula *sein* (*be*). Then, it might be an instance of a more general Copula Construction.

Pros: see the data in (6) and (7).

Cons:

- The adjective *stutzig* (*suspicious*) occurs predicatively with the verbs *werden* (*get*) and *machen* (*make*), but not with *sein* (*be*) (Fleischer, 1989). Nonetheless, *stutzig* may appear in the G-IRC (14).

(13) a. Maria wird stutzig.
Maria becomes suspicious

b. Das macht Maria stutzig.
This makes Maria suspicious

c. * Maria ist stutzig.
Maria is suspicious

(14) A: Als Maria auf einmal so spät nach Hause kam, habe ich mich schon gewundert.
'I wonderd when all of a sudden Maria came back home so late'

B: Was? Du und stutzig?!
What? you and suspicious

- In verbal passives, the copula *sein* (*be*) cannot appear, instead *werden* (*become*) is used. Nonetheless, a process passive interpretation is possible for the G-IRC in (16).

(15) a. Goethe wird von vielen Schülern gehasst.
Goethe becomes by many pupils hated
'Goethe is hated by many pupils.'

b. * Goethe ist von vielen Schülern gehasst.
Goethe is by many pupils hated

(16) Goethe und von vielen Schülern gehasst?!
Goethe and by many pupils hated
'What? Goethe hated by many pupils?!'

$\Longrightarrow$ The non-infinitival instances of the G-IRC cannot be subsumed under a Copula Construction.

2.4 Topic Construction:

L90 analyzes the entire construction as a topic construction:

(17) a. Der und einen Smoking anziehen? Du hast sie wohl nicht alle!
he and a tuxedo wear you must be crazy

b. $_{\text{TOP}}[\ _{\text{NP}[+\text{nom}]}[\ \textit{Der}\ ]\ \textit{und}\ _{\text{VP}[+\text{inf}]}[\ \textit{einen S. anziehen}\ ]\ ](_{\text{S}}[\ \textit{Du} \ldots \textit{alle}\ ])$

X must be a topic constituent and Y must be a topic, too. The following sentence is the comment.

Pros:

- Expletives are excluded in X.

(18) * Es und regnen?!
it and rain

- Quantified NPs are excluded in X. ((20): Pafel 1998 claims that *beide* is a quantifier, *die beiden* is not.)

(19) * Niemand und diesen tollen Kuchen essen?!
No one and this wonderful cake eat 'No one eat this wonderful cake?!'

(20) a. Die beiden Kandidaten und einer Meinung?!
the both candidates and of one opinion 'What? The two candidates agree?!'

b. * Beide Kandidaten und einer Meinung?!

Cons:

- Why is the comment optional?
- L90 notes that the predication relation between X and Y does not occur in other topic constructions. Furthermore, the optionality of the comment clause is problematic.
- Some negative polarity items (NPI) can occur in the PredP:

(21) a. * Peter und ein *Sterbenswörtchen* sagen?!
Peter and a dying word say 'Peter say a dying word?!'

b. * Peter und *sonderlich* freundlich zu ihr?!
Peter and especially friendly to her 'Peter be friendly to her?!'

c. Peter und ein *Hehl* aus seiner Meinung machen?!
Peter and a secret of his opinion make 'Peter make a secret of his opinion?!'

d. Peter und sich um die Probleme seiner Frau *scheren*?!
Peter and himself about the problems of his wife care
'Peter care about the problems of his wife?!'

These NPIs are licensed by simple downward-entailing elements like *höchstens* (*at most*) (Zwarts, 1997).

(22) a. * Höchstens zwei Verdächtige haben ein Sterbenswörtchen gesagt.
at most two suspects have a dying word said

b. * Höchstens zwei Kollegen sind sonderlich freundlich zu ihr gewesen.
at most two colleagues have especially friendly to her been

c. Höchstens zwei Kollegen machen ein Hehl aus ihrer Meinung.
at most two colleagues make a secret of their opinion

d. Höchstens zwei Abteilungsleiter scheren sich um die Probleme ihrer Mitarbeiter.
at most two managers care themselves about the problems of their employees

Note that there must be a (relatively weak) clause-mate licenser, because *sonderlich* is not possible in the G-IRC, whereas it can be licensed by a matrix licenser (23b).

(23) Ich bezweifle, dass ... / I doubt that ...

a. * ... Peter ein Sterbenswörtchen gesagt hat.
Peter a dying word said has

b. ... Peter sonderlich freundlich zu ihr war.
Peter especially friendly with her was

c. ... Peter ein Hehl aus seiner Meinung macht.
Peter a secret of his opinion makes

d. ... Peter sich um die Probleme seiner Frau schert.
Peter himself about the problems of his wife cares

The polarity is, however, not given in the context, i.e., it cannot be part of the topic. Rather it must be part of the construction.

⟹ X certainly is a topic constituent, but the polarity properties of Y stand in contrast to a topic analysis.

2.5 Exclamative/Interrogative Construction:

Can the polarity properties be reduced to the fact that the G-IRC is an interrogative exclamative?

Pros: Some polarity items (like German *je* (*ever*)) may occur in *yes/no*-questions, and in the G-IRC.

(24) a. * Peter hat so was je behauptet.
Peter has something like this ever claimed

b. Hat Peter so was je behauptet? (*yes/no*-question)
Has Peter so what ever claimed 'Has Peter ever claimed anything like this?'

c. * Hat Peter so was doch tatsächlich je behauptet! (Verb-initial exclamative)
has Peter so what really ever claimed

d. Peter und so was je behaupten?! (G-IRC)
Peter and so what ever claim

Cons:

- This property is neither a consequence of the exclamative status of the G-IRC (25) nor of its yes/no-question character (26).

(25) a. * Hat Peter doch tatsächlich ein Hehl aus seiner Meinung gemacht!
has Peter as a matter of fact a secret of his opinion made

b. * Peter schert sich doch tatsächlich um die Probleme seiner Frau!
Peter cares himself really about his wifes problems

(26) a. * Hat Peter ein Hehl aus seiner Meinung gemacht?
Has Peter a secret of his opinion made

b. * Schert sich Peter um die Probleme seiner Frau?
cares himself Peter about the problems of his wife

Instead, NPI licensing has been assumed to follow from the logical form of a sentence (Linebarger, 1987), its entailment properties (Ladusaw, 1980), or its pragmatic characteristics (Israel, 1996). Independent of the approach, the formal diversity of NPI-licensing structures casts doubts upon an abstract NPI-licensing construction that subsumes all the different licensing contexts.

- Michaelis and Lambrecht 1996 introduce an *Abstract Exclamative Construction* (AEC). They notice that "*in the case of the AEC we find no formal constraints other than a general requirement that all components of the semantico-pragmatic frame receive expression.*" (p. 378). The properties ascribed to the AEC are general semantico-pragmatic properties of exclamatives.

3 Further properties of the G-IRC

3.1 The syntactic category of X

X is not restricted to NPs:

(27) a. [Ein Buch auf spanisch lesen] ist schwer. (VP[inf])
[a book in Spanish read].INF is difficult 'Reading a book in Spanish is difficult.'

b. [Ein Buch auf Spanisch lesen] und schwer?!

However, X may not be a clause, neither finite (28) nor infinite (29):

(28) [Dass Peter zu Besuch kommt] gefällt mir. (*dass*-clause)
[that Peter to visit comes] pleases me 'I like it that Peter visits us.'

* [Dass Peter zu Besuch kommt] und mir gefallen?!

(29) a. [Ein Buch auf spanisch zu lesen] ist schwer.
[a book in Spanish to read].ZU-INF is difficult 'Reading a book in Spanish is difficult.'

* [Ein Buch auf spanisch zu lesen] und schwer?!

b. [Ein Buch auf spanisch zu lesen] fällt ihm schwer.
[a book in Spanish to read].ZU-INF falls him difficult

'Reading a book in Spanish is difficult for him.'

* [Ein Buch auf spanisch zu lesen] und ihm schwer fallen?!

Clauses are possible as subjects in SPC and in copula constructions, but are excluded from the G-IRC.

3.2 The ban for some modals in Y

Akmajian 1984 observes that in the English IRC, modals and perfect *have* are not possible. The German facts are different: only the future auxiliary *werden*, epistemic modals, and the modal *sollen* (*shall*) are excluded in the G-IRC (30). Deontic modals and perfect auxiliaries are acceptable (31).

(30) a. Hans wird das Buch lesen   * Hans und das Buch lesen werden?!
Hans will the book read

b. Hans kann schon zu Hause sein   * Hans und schon zu Hause sein können?!
Hans may already at home be

c. Die Kinder werden wohl schlafen.   * Die Kinder und wohl schlafen werden?!
the children will I think sleep

d. Die Kinder sollen jetzt schlafen.   * Die Kinder und jetzt schlafen sollen?!
the children are supposed to now sleep

(31) a. Die Kinder müssen um 8 Uhr schlafen gehen.
the children must at 8 o'clock to sleep go

Die Kinder und um 8 Uhr schlafen gehen müssen?!

b. Hans hat das Buch gelesen.   Hans und das Buch gelesen haben?!
Hans has the book read

c. Hans ist bis nach Helsinki geschwommen.   Hans und bis nach Helsinki geschwommen sein?!
Hans is till Helsinki swum

Note that this can be explained by the fact that the verbs in (30) (in the relevant reading) do not appear as infinitivals at all in German.

4 Sketch of an analysis

4.1 A non-hierarchical CG analysis

The properties of the G-IRC can be expressed in a straightforward way in the form of a schema as (2). In the CG analysis of the G-IRC given in Figure 1, we follow the schema of L90 in (2). Note that there is no construction mentioned in the `inherit` slot in the schema. This means that for each construction *c* either

(i) the G-IRC cannot be considered an instance of *c* (Coordinate Construction, Copula Construction), or

(ii) the properties of the G-IRC are so special that they need to be mentioned explicitly in the schema anyways (SPC, Topic Construction), or

(iii) *c* and the G-IRC share some features which trigger effects according to general principles (AEC).

4.2 Constructions in HPSG

Sailer 2000 and Richter and Sailer 2002 introduce *Phrasal Lexical Entries* (PLE) into HPSG. They are the direct equivalent of *constructions* in CG. They are used for idioms of the type *trip the light fantastic* and *kick the bucket* in Sailer 2000 and extend naturally to phrasal constructions like the G-IRC.

(32) a. The structure of HPSG in Pollard and Sag 1994:
Lexicon: *word* $\Rightarrow$LE$_1$ **or** ... **or** LE$_n$
Syntax: *phrase* $\Rightarrow$ID$_1$ **or** ID$_2$ **or** ID$_3$ **or** ID$_4$ **or** ID$_5$
General principles of grammar.

b. The structure of HPSG in constructional HPSG (Sag, 1997):

Lexicon, Syntax and general principles of the grammar are reduced to sort hierarchies with multiple inheritance and constraints on these sorts.

`inherit`
(unembedded +)
(interrogative +)
(exclamative +)
sem #3(#2)

#1 (cat N) → (case nom) (max +) (topic +) sem #2	(lexeme AND)	(cat v) → (vinfl inf) (max −) (negpol +) valence {#1} sem #3

Figure 1: Construction schema for the G-IRC

$$\begin{bmatrix} \multicolumn{2}{l}{\textit{unembedded-sign}} \\ \text{PHON} & \boxed{1} \oplus \langle \textit{und} \rangle \oplus \boxed{2} \\ \text{SYNSEM} & \begin{bmatrix}\text{LOC CONT } \textit{speaker rejects } \boxed{5}\end{bmatrix} \\ \text{DTRS} & \begin{bmatrix} \multicolumn{2}{l}{\textit{coord-struc}} \\ \text{CONJ-DTRS} & \left\langle \begin{bmatrix} \text{PHON} & \boxed{1} \\ \text{SYNSEM } \boxed{3} & \begin{bmatrix} \text{LOC} & \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \neg \begin{bmatrix}\text{CASE} \neg \textit{nom}\end{bmatrix} \\ \text{SUBCAT} & \langle\rangle \end{bmatrix} \\ \text{CONT} & \begin{bmatrix}\text{INDEX } \boxed{4}\end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}, \begin{bmatrix} \text{PHON} & \boxed{2} \\ \text{SYNSEM LOC} & \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \neg \begin{bmatrix}\text{VFORM} \neg \textit{inf}\end{bmatrix} \\ \text{SUBCAT} & \langle \boxed{3} \rangle \end{bmatrix} \\ \text{CONTENT} & \boxed{5} \begin{bmatrix}\text{ARG1 } \boxed{4}\end{bmatrix} \end{bmatrix} \end{bmatrix} \right\rangle \\ \text{CONJUNCTION-DTR} & \begin{bmatrix} \textit{word} \\ \text{PHON } \langle \textit{und} \rangle \end{bmatrix} \end{bmatrix} \\ \text{ILLOCUTION} & \textit{exclamative-question} \\ \text{INFO-STRUC} & \begin{bmatrix}\text{TOPIC } \langle \boxed{4}, \boxed{5} \rangle\end{bmatrix} \\ \text{COLL} & \textit{nonempty-list} \end{bmatrix}$$

Figure 2: HPSG phrasal lexical entry for the G-IRC construction

c. The structure of HPSG in Sailer 2000, Richter and Sailer 2002:
Lexicon: $\begin{bmatrix} \textit{sign} \\ \text{COLL } \textit{nonempty-list} \end{bmatrix} \Rightarrow \begin{pmatrix} \text{LE}_1 \textbf{ or } \ldots \textbf{or } \text{LE}_n \\ \textbf{or } \text{PLE}_1 \textbf{ or } \ldots \textbf{or } \text{PLE}_m \end{pmatrix}$
Syntax: $\begin{bmatrix} \textit{phrase} \\ \text{COLL } \textit{empty-list} \end{bmatrix} \Rightarrow \text{ID}_1 \textbf{ or } \text{ID}_2 \textbf{ or } \text{ID}_3 \textbf{ or } \text{ID}_4 \textbf{ or } \text{ID}_5$
General principles of grammar.

In the HPSG encoding in Figure 2, we do not introduce a special subtype of *phrase* but rather add a PLE that expresses a refinement of (2). The sort *unembedded-sign* and the attribute ILLOCUTION are borrowed from Richter 1997. The information structural properties are sketched following De Kuthy 2000.

5 Conclusion

- There remains a lot to discover about the G-IRC.
- What is the role of `inherit` in CG?
  - Notational shorthand?
  - Major explanatory mechanism for the organization of linguistic structures?
  - What can/ should be reduced to general principles in CG?

- Is the PLE approach to constructions in HPSG an adequate conversion of CG insights?

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