Bare Counterfactuals in Discourse

Pascal Amsili **Francis Corblin**
UHB Rennes 2 &
TALANA, CNRS URA 1028,

Université Paris 7,
2, pl. Jussieu, case 7003,
F-75251 Paris Cedex 05, France
e-mail: {`amsili,corblin`}`@linguist.jussieu.fr`

Symposium **La 7**
Application of Pragmatic Theories of Discourse Structure
to Natural Language Interpretation

Outline

Kasper's classification of conditionals

Based on two constrasts:

– mood (indicative *vs.* subjunctive)
– structure (simple *vs.* conditional).

(1) a. SI: Jean m'a appelé.
Jean called me.
b. SS: Jean m'aurait appelé.
JohnJean would have called me.
c. IC: Si Jean est rentré, il va m'appeler.
If Jean has come home, he'll call me.
d. SC: Si Jean était rentré, il m'appellerait.
If Jean was back home, he would call me.

[Kasper, 1992]

Various types of SS (1)

- Politeness

(2) a. Me prêteriez-vous ce livre ?
Would you lend me this book?
b. J'aimerais vous demander...
I would like to ask you...

- Conjectural facts (only in French?)

(3) a. Pleuvrait-il ?
[Would it be raining?]
b. Le dictateur se serait enfui.
[The dictator would have run away]

Various types of SS (2)

- Kasper's examples

(4) a. J'aurais trouvé plus vite (, moi)
I would have found faster

b. Ton frère aurait réussi l'examen (, lui)
Your brother would have passed the exam

- Bare Counterfactuals "Elliptical counterfactuals"

(5) a. [Marie n'est pas enceinte.] Elle me le dirait (sinon /# elle)
Marie is not pregnant. She would tell me

b. [Jean n'a pas d'enfants.] Il me les aurait présentés (sinon /# lui)
Jean has no children. He would have introduced them to me

BCs are elliptical...

- "Conditional" mood

Mostly used in the main clause of an *if*-sentence

(6) Si j'avais su, je ne serais pas venu.
If I had known, I wouldn't have come

- Anaphoric property

(7) a. Jean n'a pas d'enfants. Il serait plus patient
Jean has no children. He'd be more patient.

b. Marie m'aurait appelé maintenant. Elle a dû avoir un problème
Marie would have called me now. Something must have turned up

c. "Mais, Madame, je vous aurais aidé !"
But Madam, I would have helped you!

$\Phi_{\text{BC}} \quad \Rightarrow \quad$ ellipsis "[if $\mathbf{X}$,] Φ".

... and counterfactual

So we assume we have "[if $\mathbf{X}$,] Φ".

Also, (French) tense concord rules apply:

$$\text{“[Si } \mathbf{X}_{\text{Imparfait}}\text{] } \Phi_{\text{Cond. Prés.}}\text{”}$$
$$\text{“[Si } \mathbf{X}_{\text{Plus-que-parfait}}\text{] } \Phi_{\text{Cond. Passé}}\text{”}$$

"*if A (then) B*" is counterfactual:

- *A* is false
- Let $\mathbf{W}$ be the actual world (set of all true propositions)

For all $\mathbf{W}'$ such that $\begin{cases} - \mathbf{W}' \text{ is similar to } \mathbf{W} \\ - A \in \mathbf{W}' \end{cases}$, $B \in \mathbf{W}'$

Ellipsis' content

- **SSs**

(8) [Si $\mathbf{X}$], Jean aurait réussi son examen.
[If $\mathbf{X}$], Jean would have passed his exam

$\mathbf{X}$ = "Jean avait passé cet examen" *Jean had taken this exam*

$\rightarrow \mathbf{X}$ depends on Φ

- **BCs**

(9) [Jean n'a pas de voiture.] [Si $\mathbf{X}$], il ne viendrait pas à pied.
Jean has no car. [If $\mathbf{X}$,] he wouldn't come by foot

$\mathbf{X}$ = "Jean avait une voiture" *Jean had a car*

$\rightarrow \mathbf{X}$ depends on π

"π. [if $\mathbf{X}$,] Φ." $\quad \Rightarrow \quad \mathbf{X} = \neg\pi$

(10) [Jean n'a pas de voiture.]$_\pi$ Si (non (π)), il ne viendrait pas à pied.

Problem & Questions

So, Φ in the discourse "π. Φ_{BC}" is sometimes (but not always) represented as

$$\boxed{\neg\pi} \Rightarrow \boxed{\Phi}$$

1. Why the *negation* of π?
2. Why "sometimes"?
3. Constraints on Φ?
4. Constraints on the relation between π and Φ?

Deducing $\neg\pi$ from counterfactuality?

- Φ being couterfactual, the accommodated material has to be false
  $\rightarrow \pi$ ruled out
- **Assumption**: π being salient in a context, its negation is "automatically" intended in such an elliptical counterfactual case.
  Consequence: any π, in any discourse context should work.

But not any π is a good candidate:
Compare some BCs with and without "*sinon*" (*otherwise*)

(11) Il pleut. Je serais allé à la plage (# $\emptyset$ / sinon).
It's raining. I would have gone to the beach ($\emptyset$ / otherwise).
X = Il ne pleuvait pas *It weren't raining*

Constraints on π: polarity?

(12) a. Mary didn't give the name of the witness.
b. They would have killed him. [Corblin, 1994]

(13) a. Mary gave the name of the witness.
b. They would have killed her. [Corblin, 1994]

[Frank, 1996] :

- Observation: Negative πs give in general better results (than their positive counterparts).
- Debate: correct interpretation of this?
- Frank's conclusion: double analysis of bare counterfactuals, depending on the antecedent's polarity

Constraints on π revisited

- Many positive sentences give good results

(14) Il a plu. L'herbe ne serait pas si haute.
It has rained. The grass wouldn't be so high.

- It is compatible with an explicit affirmation of π:

(15) Il est certain qu'il est déjà venu. Il ne connaîtrait pas le nom.
It is certain that he's already come here. He wouldn't know the name

Constraints on π revisited (Discourse Relations)

Some negative πs might loose their ability

(16) a. Il ne fait pas beau. # Je serais allé à la plage.
The wheather is not nice. I would have gone to the beach

b. Il ne part pas en bateau. # Il serait malade.
He doesn't go by boat. He would be sick

c. D'après mon frère qui a vécu là-bas, il n'a pas plu en juillet. # L'herbe ne serait pas si rase.
According to my brother who lived there, there was no rain in July. The grass would not have grown so little

Hypothesis: The relevant feature is not the polarity of π, but the fact that π can be interpreted as a proposition in need of a justification, which is given by the (re-constructed) counterfactual.

Discourse relations: Evidence

Evidence

Constraint on N:
R might not believe N to a degree satisfactory to W

Constraint on S: R believes or will find it credible

Constraint on the N+S combination:
R's comprehending S increases R's belief on N

Effect: R's belief of of N is increased

[Mann and Thompson, 1988, 251]

Nucleus (π), **S**atellite (Φ), **W**riter (speaker), **R**eader (hearer).

Discourse relations: Justify

Justify

Constraint on N: none

Constraint on S: none

Constraint on the N+S combination: R's comprehending S increases R's readiness to accept W's right to present N

Effect: R's readiness to accept W's right to present N is increased

[Mann and Thompson, 1988, 252]

Examples

Evidence

(17) a. Il pleut (N). La route est mouillée (S).
It's raining. The road is wet.

Justify

(18) a. Je viens de dehors (S). Il pleut (N).
I come from outside. It's raining.

BCs

(19) a. Il pleut. La route ne serait pas mouillée (#$\emptyset$ / sinon).
It's raining. The road wouldn't be wet ($\emptyset$/otherwise)

b. Il doit pleuvoir. La route ne serait pas mouillée ($\emptyset$ / sinon).
It must be raining. The road wouldn't be wet ($\emptyset$/otherwise)

Discourse relation: Justification

Something like a merging-extension of these two relations seems to be adequate for the kind of example under consideration. Let us call it *Justification*:

Justification

- **Constraint on π:** π presents an assumption that W gives as highly plausible, or an action that W gives as well motivated
- **Constraint on Φ:** Φ can be interpreted as an evidence which substantiates the assumption π, or a motivation for π, hence giving S the right to present π as highly plausible, or well motivated

Justification: a simple example

Such a definition means that *Justification* is based on some common sense reasoning process which deduces the high probability of π as a conclusion from the premise Φ.

Simple example not involving conditionals:

(20) a. John has no car.
b. He walks to his job every day.

The constraint on π of (20) will be satisfied if and only if the first sentence is not presented as an established fact, the conclusion of a proof for instance. But it will be fine if (20) is, for instance, an answer to a question.

(21) a. A: Do you think John owns a car?
b. B: John has no car. He walks to his job every day.

Justification: the reasoning process

How can Φ be taken as a justification of π?

There must be some reasoning process involving Φ,
of which π is the conclusion.

We assume a version of [Asher and Morreau, 1991]'s commonsense reasoning system including "defeasible modus ponens (tollens)".

We have "Φ", we need at least another premise.

Suppose we have a premise of the form: $\Phi \rightsquigarrow$[a] π,
belonging to the discourse background knowledge.

[a] Defeasible entailment

The reasoning process: back to the example

Suppose the background discourse knowledge contains: $\Phi \rightsquigarrow \pi$.

Then, by (defeasible) *Modus Ponens*:

$\Phi \rightsquigarrow \pi$	If someone (John) walks to his job he has no car
Φ	He walks to his job every day
π	

Alternatively, the defeasible entailment could be ($\Phi' \rightsquigarrow \pi'$):
If someone has a car, he doesn't walk to his job

Then a *Modus Tollens* is used:

$\Phi' \rightsquigarrow \pi'$	If someone has a car, he does not walk to his job
$\neg\pi'$	John walks to his job
$\neg\Phi'$	John has no car

The background defeasible entailment

Some properties of the background defeasible entailment:

1. Formally, a quantification on cases
2. Belongs to some background knowledge
3. Presupposition? presupposition of what?

(2.) above means that not any entailment can be accommodated.

(22) a. John has no car
b. It rains

(22) won't work because we are unable to accommodate the entailment required by the reasoning process.

Justification and Counterfactuals

Consider a bare counterfactual example maximally similar to (20):

(23) a. John has no car
b. He wouldn't walk to his job every day

Let us label Φ the counterfactual scope:
"He doesn't walk to his job everyday".

From the counterfactual mood, we infer:

$\neg\Phi$
[if **X**] must be entered into the Discourse Representation.
X is unspecified by the linguistic content.
X is false.

Counterfactuals and background defeasible entailment

A plausible assumption about counterfactuals is that they are associated with of a "background DRS" which is formally a quantification on cases. [Kasper, 1992, 322]

(24) If John had a car, he wouldn't walk to his job

Background DRS: "*If someone has a car, he does not walk to his job*"
We see this background DRS as a defeasible entailment on cases.
If this is true, we get the following informations from a bare counterfactual having Φ as a scope:

$\neg\Phi$
[if **X**] must be entered into the Discourse Representation.
X is false.
X $\leadsto \Phi$

Back to example (23)

(25) a. John has no car.
b. He wouldn't walk to his job every day.

$\neg\Phi$.	John walks to his job every day
[if **X**] Φ	If **X**, John would walk to his job every day.
X is false.	
X $\leadsto \Phi$	if **X**, normally John doesn't walk to his job.

Discourse Relation and specification of BC restrictor

The Discourse relation path:

Trying to establish a justification DR

Why? π is something in need of justification; intonation marks,...

Needed? A premise. A background entailment deducing π

Provided by BC:

- a background entailment: $\mathbf{X} \rightsquigarrow \Phi$, $\mathbf{X}$ false
- a premise: $\neg\Phi$

One can deduce π if $\mathbf{X} = \neg\pi$ (by modus tollens)

Additional clue: check whether $\mathbf{X} \rightsquigarrow \Phi$ belongs to our knowledge. If this is the case, confirmation.

Specification of BC restrictor and Discourse Relation

The contextual domain restriction path

BC is based on a background entailment: $\mathbf{X} \rightsquigarrow \Phi$, $\mathbf{X}$ false.

Is there any such background entailment recoverable from π?

π is not a good candidate (because it is true).

$\neg\pi$ is an admissible candidate: there is such a background entailment.

Additional clue: check whether this comes with a known discourse relation

Accommodation of $\neg\pi$ as a BC restrictor?

Summary :

- **When ?**

When a DR of justification is so obtained.

Hence some contraints on π.
π must be such that this DR comes to mind during processing.

- **Why?**

There is a close connection between counterfactual and justification: both are grounded on a background defeasible entailment.The existence in the background of such a defeasible entailment $\neg\pi \rightsquigarrow \Phi$ is the decisive property which comforts this otherwise nonstandard accommodation (accommodation of $\neg P$).

Something special with counterfactual: any contextual π is ruled out since the BC restrictor must be false.

Conclusion: underspecification and recoverability

Underspecification is allowed when preserving the accessibility for the hearer to the intended representation of a discourse:

An I.R. can be left implicit when it is accessible from the main discourse interpretation strategies, i.e. when the main discourse strategies are *converging* on it.

When can "*sinon*" (*otherwise*) be omitted?

When DR establishment and restrictor resolution converge on the solution $\neg\pi$

A resolution is fine if it comes with a good (elsewhere supported) discourse relation, or resolution and coherence relation assignation must converge. Many authors, from Hobbs (1976) to Asher (1997) share this view.

Conclusion: research perspectives

• Empirical research on Bare Conditionals.

Is it possible to generalize this perspective to other BCs including Kasper's ones?

- Suggestion: take as a starting point the DR of *contrast*,
- mentionned by Kasper, but not playing any role in his treatment.

Other BC cases?

• Implementation of the cooperation between resolution/accommodation process on the one hand and the DR establishment process on the other.

Treatment in parallel leading to the emergence of "the solution" by convergence of preferences.

Esslli '97, Aix-en-Provence, August 97 2.1

Modus Tollens

How can the accommodation of $\neg\pi$ help having Φ a justification for π?

π has to be the conclusion of an inference involving Φ, based on:

- the accommodation of a "rule" $\boxed{} \leadsto \boxed{\Phi}$
- Φ's counterfactuality: we have $\neg\Phi$

Best candidate : *modus tollens*, of the form: $\dfrac{\begin{array}{c} A \rightarrow B \\ \neg B \end{array}}{\neg A}$

We have: $\dfrac{\begin{array}{c} \boxed{} \leadsto \boxed{\Phi} \\ \neg\Phi \end{array}}{\pi}$: what fits into the empty box is $\neg\pi$.

References

[Asher and Morreau, 1991] Nicholas Asher and Michael Morreau. Commonsense Entailment: a Modal Theory of Nonmonotonic Reasoning. In *Proc. of the 12th IJCAI*, 1991.

[Corblin, 1994] Francis Corblin. A semantic-pragmatic interface for modal subordination. Unpublished paper presented at the LGB Meeting, Middlesex University, London 1994.

[Frank, 1996] Annette Frank. *Context Dependance in Modal Constructions*. PhD diss., University of Stuttgart (IMS), 1996.

[Kasper, 1992] Walter Kasper. Presuppositions, compositions and simple subjunctives. *Journal of Semantics*, 9:307–331, 1992.

[Mann and Thompson, 1988] William C. Mann and Sandra A. Thompson. Rhetorical structure theory: Towards a functional theory of text organisation. *Text*, 8(3):243–281, 1988.