Topics in conjunctions are conditional

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Supported in part by NSF grant #2116972 "Research on conditional and modal language" (with Stefan Kaufmann)

DIP colloquium, ILLC Amsterdam, Dec 17, 2021

Outline

Introduction

- Sentential conjunctions can obtain conditional readings:
  Conditional conjunctions, CCs

  (1) *Mary sings another song and John leaves the bar.*
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- Challenge: derive conditional readings for sentential conjunctions that look like their Boolean counterparts.
- CCs exist across many typologically unrelated languages.
  Bolinger 1967; Culicover and Jackendoff 1997; Kaufmann 2012; Keshet 2013; von Fintel and Iatridou 2017, a.o.

Roadmap

- Starr (2018), Kaufmann (2018a): the first conjunct of a CC introduces a hypothetical state of affairs as the topic, relative to which the second conjunct is evaluated.

  With construction specific assumptions; Starr: lexical, Kaufmann: prosodic cues.

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  - CCs and semantic types of indicative conditionals
  - Choice of material topicalized
  - What sort of topicalization?

Conjunctions and hypothetical conditionals

	$\phi \wedge \psi$	$\phi \Rightarrow \psi$
Entailments		
ϕ	entailed	not entailed
ψ	entailed	ϕ entails ψ
Dynamics		
$C + \_\_\_ = ?$	$(C + \phi) + \psi$	$(C + \phi) + \psi) \cup (C + \neg\phi)$

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- Weakened dynamic conjunctions without commitment to ϕ?

$$((\mathsf{C} + \phi) + \psi) \cup (\mathsf{C} + \neg\phi)$$

$\Rightarrow$ Account-type 1...

Account-type 1: Left-subordinating *and*

(Culicover & Jackendoff 1997, Klinedinst & Rothschild 2015, Starr 2018)

CCs are ordinary hypothetical conditionals derived from a special (Starr: left-topicalizing) variant of *and*:

(3) $[\ \mathrm{C1}\ \mathit{and}_{LS}\ \mathrm{C2}\ ]$

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- ♥ Draws on dynamic similarity
- ☣ Requires polysemous lexical marker *and*
- ☣ Requires 'conjoinable' ϕ and ψ (–alternative forms of C1?)
- ☣ Predicts regular epistemic conditionals
- ☣ Connection with information structure

Account-type 2: Restricting quantificational operator

(Keshet, 2013; Keshet and Medeiros, 2019)

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- ♥ Inherently information structure sensitive
- ☣ But...

Issues for restricting quantificational operator

- Q-adverbs need to be extracted from C2 (regular conjunctions: only from C1; Keshet 2013:225):

(5) a. *You come on time and you usually get a seat.*
≈ *Usually, you come on time, and you get a seat.*
b. *She probably left and you just didn't notice.* (his ii-a)

Even when embedded:

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- Dealing with alternative forms of C1 ⇒ *more to come*

  (7) a. You only have to come on time and you will get a seat.
  b. Come on time and you'll usually get a seat.

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It's not all about *and*

- Conditional effects for juxtapositions

(8) a. *You call the cops, I break her legs.*
Klinedinst and Rothschild 2015

b. *U drive. U text. U pay.*
US Dept. of Transportation

(9) *These warm summer days ain't gonna last forever, Thorn. You don't* **hurry up**, *we gonna be hidin' from the rat creatures in a* **snowbank!**
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- Conjunctive adverbial modifiers become conditional antecedents when topicalized
Rosina (2019)

(10) [*Bei schönem Wetter*]$_{\mathrm{CT}}$ [*grillen wir im Garten.*]$_{\mathrm{F}}$
with nice weather barbeque we in.the garden
'In case the weather is nice, we'll have a barbeque in the garden.'
'In nice weather, we'll have a barbeque in the garden.'

Japanese, Korean: it's about topicalization

- Rich inventory of conditional markers
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  - Japanese *-te=wa* and Korean *-ko=nun* conditionals instantiate '[p-TOPIC] and q'
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  - Diachronically, possibly all Japanese and Korean conditional markers are derived this way (e.g. Japanese *-reba*, Hara 2020; Korean *myen*), but others don't show CC-characteristic interpretations (anymore).

CCs from conjunction plus topic marker: Japanese

(11) *Mary=ga uta=o utat-te John=ga dete iku.*
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Foreground/background split in English and German

- CCs receive a special intonation: first conjunct ends in fall-rise (Pierrehumbert and Hirschberg, 1990)
- CCs cannot express uncertainty about which conditional holds: not all focus

(15) (Context 1: There seems to be a particular connection between one of the keys and what your character does, but I havent fully figured this out, I have to keep watching some more.)

a. ✓*Either your character jumps if you press the space bar, or it disappears if you press the ALT key.*

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After 'In the next round you have two options': (15b) is felicitous and preferred , but can be construed as regular conjunctions

Desiderata

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☣ C1 contains 'unfit' material in IaDs, additional material in SMaDs, and misses material in NPaD.

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- Form of topicalized material conspires with discourse settings to determine what the second conjunct is relativized to
- . . .
- . . .

A ban on epistemic CCs?

CCs are generally taken to not express epistemic conditionals

exs from Bolinger 1967 and Keshet 2013

(20) a. *If you have the other half of the locket you are my half-sister.*
b. #*You have the other half of the locket and you are my half-sister.*

(21) a. (#)*John left work at 6 and he's probably home by now.* no CC
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- Ideas:
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- Next: two types of exceptions to the ban on epistemic CCs

Epistemic CCs 1: Predictive

probably-CCs after all — from Kaufmann and Whitman Ms.

(22) a. *Mary tosses that coin, and it probably comes up heads.*
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(23) *Mary sings one more song and John probably has a headache for 5 weeks.*

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- Crucially: predictive conditionals (Kaufmann 2005; antecedent refers to state of affairs not yet manifest or verifiable at speech time)

Epistemic CCs 1: Epistemic predictive (continued)

Settled antecedents with unsettled consequents:

(24) (context: I'm about to open the door to find out whether or not you've broken anything.)
%*You've broken another vase and I'm leaving.*

ex from Culicover and Jackendoff 1997; Weisser 2015

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$\Rightarrow$ CCs can be epistemic (without much contextual support) when at least one of C1 and C2 describes a future contingency

Epistemic CCs 2: Inference tickets (Ryle 1949)

- Confirm: epistemic CCs without predictivity are awkward out of the blue

(25) *He left around 5 and he is home by now.* standalone: no CC

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but improve { significantly/%fully } in '*what shows what?*'-reasoning: **?**

surveyed informally for English, German, Japanese *to*

(26) A: Oh no, look, John forgot his phone. We can probably find out when he left the office, but I have no clue where he is now. - Do you think we can reach him somehow?

B: Come on, it's not that hard, you know him!. . . *He left around 5 and* {*he's / he must be*} *home by now; he left around 6 and he* {*still will be / must still be*} *exercising at the gym.*

(27) Conversation in the department kitchen:

A: Have you seen Jon? Im not sure if he's at the department today. . .

B (pointing to a tea pot sitting on the kitchen counter without being able to see if it's empty): *Well, there's no more tea in that pot and* { *he's around / he was here this morning*}.

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  - Topicalization in CCs is contrastive
  - Inference tickets and predicitivity indicate the required discourse structure or facilitate its accommodation:
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  'ϕ and ψ' $\Rightarrow$ 'ϕ and $\{$ we know that $\}$ ψ'
- Could there be aboutness topicalization from conjunctions?
  (– if not, related to known syntactic symmetry constraints, Mayr and Schmitt 2017)

Topics of questionable topicality -?

- following Kaufmann and Whitman Ms.

(28) A: Under what conditions will you buy this house?
B: I will buy this house if you give me the money.
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- Topic marked conditional antecedent can constitute answer as contrastive topic:

(29) If you give me the money, then I will give you the house.

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B: I will buy this house if you give me the money.
(von Fintel 1994: 81, his (6)), also Iatridou 2013 for Turkish

- Topic marked conditional antecedent can constitute answer as contrastive topic:

(29) If you give me the money, then I will give you the house.

- Focus marking on first conjunct yields corrections of regular CCs, not 'Inverse CCs' : (*pace* Keshet 2013)

(30) [You press the SPACE button]$_{\mathrm{F}}$ and your character jumps.

a. $\not\approx$ All (typical) cases in which you do something relevant and your character jumps are cases in which you press the space bar and your character jumps.

b. $\approx$ Pressing the space button is the action such that, if you do it, your character jumps

Topics of questionable topicality -?

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- Maintain: C1s in CCs <u>are</u> topical.

Desiderata

- CCs derive from topicalization of the initial sentence(s) in conjunctions or juxtapositions

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- CCs derive from topicalization of the initial sentence(s) in conjunctions or juxtapositions
- Form of topicalized material conspires with discourse settings to determine what the second conjunct is relativized to
- The readings of CCs are constrained by discourse structure
  - Predictive epistemic conditionals are ok (generic or single-case)
  - Non-predictive epistemic conditionals work as 'inference tickets'

Outline

Referential *if*-clauses

- Conditional antecedents are definite desriptions referring to worlds or propositions

Schein 2003; Schlenker 2004; Bhatt and Pancheva 2006,
Kaufmann 2018b; Williamson 2019; Yang t.a.

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- Topicalized C1 should behave like *if*-antecedent

  To keep in mind: C1 content can differ from target antecedent (IaD, SMaD, NPaD)

DPL with propositional referents

AnderBois, Brasovenau, Henderson 2015 (ABH15)

- Formulas denote binary relations between variable assignments
- Variables for individuals $x, y, \ldots$ and propositions (sets of possible worlds) $p, q, \ldots$
- Translation indexes with designated referent p that stores a (possibly improper) subset of the current context set and can be bound by intensional operators

  Simplified from ABH15
- Add: dref for topical proposition p^{top}
- Relevant atomic formulas:

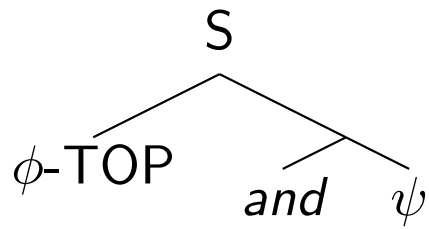
(31)
a. $[\![p = p']\!]^{g,h} = 1$ iff $g = h$ and $h(p) = h(p')$
b. $[\![p \subseteq p']\!]^{g,h} = 1$ iff $g = h$ and $h(p) \subseteq h(p')$
c. $[\![\mathrm{R}_p(x_1, \ldots, x_n)]\!]^{M,g,h} = 1$ iff $g = h$ and for all $w \in h(p)$: $< h(x_1), \ldots h(x_n) > \in I_w(\mathrm{R})$
d. $[\![[p]]\!]^{g,h} = 1$ iff for any variable v s.t. $v \neq p$: $g(v) = h(v)$

Dynamic conjunction:

(32) $[\![\phi \wedge \psi]\!]^{g,h} = 1$ iff there exists k s.t. $[\![\phi]\!]^{g,k} = [\![\psi]\!]^{k,h} = 1$.

Translating CCs

(33)



- ϕ-TOP $\rightsquigarrow [p^{top}] \wedge \mathbf{max}_p^{p^{top}}(\phi')$
- $[\![\mathbf{max}_p^{p^{top}}(\phi')]\!]^{g,h} = 1$ iff $[\![[p^{top}] \wedge p^{top} \subseteq p \wedge \phi'[p/p^{top}]]\!]^{g,h} = 1$ and there is no h' s.t. $[\![[p^{top}] \wedge p^{top} \subseteq p \wedge \phi'[p/p^{top}]]\!]^{g,h'} = 1$ and $h(p^{top}) \subset h'(p^{top})$ mod. ABH15
- *and* $\psi \rightsquigarrow \psi'[p/p^{top}]$
  and triggers evaluation on p^{top} (default: $p^{top} = p$)
  SDRT: coordinating relation with joint topic
  Txurruka 2003; Asher and Lascarides 2003
- (33) $\rightsquigarrow [p^{top}] \wedge \mathbf{max}_p^{p^{top}}(\phi') \wedge \psi'[p/p^{top}]$

You sing another song and I'm out of here.

- Boolean and CC:

(34)
a. *you sing another song* $\rightsquigarrow \textsc{Song}_p$
b. *I'm out of here* $\rightsquigarrow \textsc{Out}_p$
c. *and I'm out of here* $\rightsquigarrow \textsc{Out}_{p^{top}}$

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- CC:

(36) a. [*You sing another song*-TOP [*and I'm out of here*]]
b. $[p^{top}] \wedge \mathbf{max}_p^{p^{top}}\ (\textsc{Song}_p) \wedge \textsc{Out}_{p^{top}}$
c. p^{top} set to $\textsc{Song}$-subset of p

$\Rightarrow$ an assignment g that stores $\textsc{Song}$-worlds in p that are not in $\textsc{Out}$ has no successor ($\approx$ hypothetical conditional)

You sing a song and I'm usually out of here.

- Desideratum: *usually* in situ

You sing a song and I'm usually out of here.

- Desideratum: *usually* in situ
- With *usually* as 'most'

(37) a. *usually* $\psi \rightsquigarrow \mathsf{GEN}_p(p^{top})(\psi')$

b. $[\![\mathsf{GEN}_p(p^{top})(\psi')]\!]^{g,h} = 1$ iff $[\![[p'] \wedge \mathbf{max}^{p'}_{p^{top}}(\psi') \wedge \textsc{Most}(p^{top})(p')]\!]^{g,h} = 1$

c. $[\![\textsc{Most}(p^{top})(p')]\!]^{g,h} = 1$ iff for most $w \in h(p^{top}) : w \in h(p')$

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- But what about wide-scope *usually* -?

(38) *Usually, you sing a song and I'm out of here. But today I have ear plugs :)!*

CC can scope under *usually*: replace $\textsc{Most}$ with normalcy w.r.t. p $\Rightarrow$ *More work!*

Good news for one-place anaphoric *and*

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- *and* $\psi \rightsquigarrow \psi'[p/p^{top}]$
- *and* can be discourse-anaphoric, both Boolean and CC reading

(39) A: We can send Sue an email.
B: Right! And we can send John a text message.

(40) A: We can send Sue an email.
B: Yes. And she'll never talk to us again.
$\approx$ 'If we do that, she'll never talk to us again.'

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- Minimally: Avoid vacuous topicalization
- Suggests: Propositional dref in C1 resolved according to pragmatic considerations, effect of *and* is more indirect (Asher and Lascarides 2003 (SDRT) Maximize Discourse Coherence; Stonjnić 2016)

Outline

The missing modal puzzle (Kaufmann 2018)

- Imperative and SM modality in C1 $\rightsquigarrow$ modal-free antecedent

(41) a. *Sing one more song and I'm out of here.* IaD

b. *You only have to sing one more song and I'm out of here.* SMaD

$\approx$ 'If you sing one more song,. . . '

The missing modal puzzle (Kaufmann 2018)

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b. *You only have to sing one more song and I'm out of here.* SMaD
$\approx$ 'If you sing one more song,. . . '

- Regular modals in C1 $\rightsquigarrow$ modal antecedent:

(42) a. #*You* { *have to* / *should* / *must* } *sing one more song and I'm out of here.*
$\approx$ 'If you have to/should/must sing one more song, . . . '

Conclusions from missing modality -?

Claim: Evidence for the non-modal nature of imperatives (von Fintel and Iatridou, 2017; Starr, 2018)

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(43) a. You only have to sing another song and I'm out of here.
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- Imperative proposition is available for pick-up elsewhere
  pace Snider 2017, his (44a): confound from stress, John Whitman, p.c.

(44) a. *Shut the door! Nancy (already) told you that.*
#that: Addressee should shut the door.
b. *Shut the door! Hasn't Nancy told you that already?*

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- Sometimes even regular modals disappear from the antecedent . . .

Case 1: Possibility modals staying out

- Possibility modals with *even if*-effect: ex from Schwager 2006

(45) *You can call him at MIDnight and he won't be angry.*

a. $\approx$ Even if you call him at midnight he won't be angry.

b. $^{???} \approx \Diamond$CallAtMn $\wedge \neg$ Angry

c. $\not\approx \Diamond$(Call-At-Mn $\wedge \neg$ Angry)

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- Possibility modal with minimizing effect

Culicover and Jackendoff 1997, base case for extraction contrast; don't comment on interpretation

(46) You can just wave your hands like *this* and we arrest the whole gang. their (35a)
$\approx$ You can just wave your hands like *this* [*to get our attention/to make us arrest the whole gang*] and if [*you wave your hands like this*] we arrest the whole gang.

Case 2: Even necessity modals can stay out after all

- Contrastive focus can make modal vanish from antecedent:

(47) You { have to / must /need to } sing [one more SONG] and I'll leave.
≈ 'It's if you sing one more song that I'll leave.'
≈ 'If you want me to leave you have to sing one more song.'

But they're all not entirely gone...

- *even*-effect:

(48) a. (#)You can call him at midnight and you're friends with his boss.

b. You can [call him at MIDnight] and he won't be angry.

But they're all not entirely gone...

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- SMs: sensitive to a scale of alternatives to their prejacent

von Fintel and Iatridou 2007

(49) You only have to sing one more song and I leave.
$\Rightarrow <$ you sing one more song, ..., you hit me $>$

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  (49) You only have to sing one more song and I leave.
  $\Rightarrow <$ you sing one more song, ..., you hit me $>$

- Imperatives impose constraints on contexts of felicitous use by a.o. constraining QUD to decision problem with alternatives to the prejacent (Kaufmann and Kaufmann t.a.), not questions about suitable goals

  (50) If you want to host the department party, buy a bigger dining table.

Tracking imperative meaning in IaDs

Keshet and Medeiros (2019): experimental evidence that DaDs are preferred over IaDs if CCs don't contribute to choice of action:

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(51) Present Context: An exasperated parent is searching the cluttered attic for a mischievous child and shouts:

a. *You're hiding from me again and you're in big trouble.*

b. #*Be hiding from me again and you're in big trouble.*

(52) Future Context: An exasperated parent wants a mischievous child to stop hiding before some visitors arrive. She exclaims:

a. *You're hiding from me when grandma arrives and you'll be in big trouble.*

b. *Be hiding from me when grandma arrives and you'll be in big trouble.*

So what's missing -?

- Modal meaning is missing from antecedent of the conditional that is conveyed ('not part of p^{top}')

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- Commitment to full first conjunct is hard to distinguish from 'missingness' in a context that presupposes 'what does Agent have to do to reach goal G'

(53) A: How do I get to Harlem?
B: You have to take the A-train.

(54) You have to sing one more SONG.

So what's missing -?

- Modal meaning is missing from antecedent of the conditional that is conveyed ('not part of p^{top}')
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(53) A: How do I get to Harlem?
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(54) You have to sing one more SONG.

- To try: composition of material with underspecified logical forms, discourse relations and focus contours as presuppositions (Schlöder and Lascarides 2020, SDRT)
- DaDs, NPaDs: no corresponding commitment to C1

Outline

And so far...

- First stab at formalizing a unfied account of different CC-types
- Drawing on a dynamic framework with referents for propositions
- Allows to derive CCs from topicalization only, no need for lexical(ly polysemous) conjunctions
- More work needed to determine what becomes the propositional topic p^{top} and how it relates to overall discourse structure (QUD or discourse relations; presumed causal networks,...).

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- **Many thanks!!! – to you here and many others in preparation...**

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