Topics in Conditional Conjunctions

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49th Annual Meeting of the North East Linguistic Society (NELS 49), Oct 5-7, 2018
1 Introduction
   • Types of CCs
   • Side remarks on types of IaDs
   • Semantics of CCs

2 Analyzing CCs
   • Existing Accounts
   • A Topic Analysis of CCs

3 The Missing Modal Puzzle
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4 In Favor of PI
   • Correlating IaDs...
Expressing hypotheticality

- Studies of hypothetical conditionals typically focus on *if* . . . (*then*) (and equivalents *wenn* . . . (*dann*), *se*, . . .)
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- **Goals for today:**
  - Evaluate existing and novel findings and recent proposals
  - Identify desiderata based on a (natural) family of constructions
  - Argue for a prosody-driven topic theory
  - Further motivation and questions
Conditional Conjunctions (CCs)

Clausal conjunctions (C1 *and* C2) can express conditionals


(1) You sing one more song and I’m out of here.

Similar in meaning to the regular hypothetical conditional:

(2) If you sing one more song, I’m out of here.
Conditional Conjunctions (CCs)

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(Jespersen 1924, Bolinger 1967, Culicover 1970,
Culicover & Jackendoff 1997, . . .)

(1) You sing one more song and I’m out of here.

Similar in meaning to the regular hypothetical conditional:

(2) If you sing one more song, I’m out of here.

Unlike ordinary conjunctions, (1) entails neither conjunct.
Conditional Conjunctions (CCs) are like conditionals

Unlike ordinary conjunctions, similarly to *if-(then)-*conditionals, CCs . . .
Conditional Conjunctions (CCs) are like conditionals

Unlike ordinary conjunctions, similarly to *if-(then)*-conditionals, CCs...

- allow for binding from consequent into antecedent

  Culicover & Jackendoff 1997; Russell 2007:(27a)

  (3) [You offer *him* enough money] and [[every senator];, no matter how honest, will give you access to his; files.]
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  (3) [You offer him; enough money] and [[every senator];, no matter how honest, will give you access to his; files.]

- license NPIs in C1
  Culicover & Jackendoff 1997

  (4) Lift a finger to help him and John will move mountains to return the favor.

  Keshet & Medeiros 2018:(59a)
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- require particular ‘integrated’ prosody

  \hspace{1em} \text{C1 ends with phrase accent H, Pierrehumbert \& Hirschberg 1990;}

  \hspace{1em} \text{Krifka 2004, Keshet 2013}
Types of Conditional Conjunctions (CCs)

C1: different types of clauses or NP, C2: always clausal:
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(5) **Declarative** and **Declarative**:

*You sing one more song and I'm out of here.*
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(5) Declarative and Declarative:
You sing one more song and I'm out of here.

(6) Imperative and Declarative:
Sing one more song and I'm out of here.
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You *only have to sing one more song and I’m out of here*. 
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   \[ \text{You only have to sing one more song and I'm out of here.} \]  
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(8) **NP** and Declarative:
   \[ \text{One more song and I'm out of here.} \]  
   NPaD

≈ regular hypothetical conditional:

‘If you sing one more song, I’m out of here.’

(NPaD: context dependent, Culicover 1970)
Lacking commitments

CCs lack speaker commitments associated with C1 in isolation (or in ordinary conjunctions):
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- DaDs vs. stand-alone declaratives

  (9) You sing one more song and I’ll fall asleep. But I know you won’t.

  (10) You will sing one more song. #But I know you won’t.
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- IaDs vs. stand-alone imperatives.

  (11) Say no and the guy will come again. So don’t.

  (12) Say no. #So don’t.
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Assertive commitment to C2 only conditional on state of affairs mentioned in C1.
Comparing regular conjunctions

- Regular conjunctions of declaratives (as enforced by *will* in C1):
  
  (13) Mary will sing another song and Sue will have another drink. *no DaD*
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- ‘NP and **Decl**’ can receive non-conditional readings
  
  (14) My only pen and [you went and lost it].  
  - Culicover 1970:(12)
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- ‘Imp and Decl’ can receive non-conditional readings
  
  Txurrura 2003, Starr 2017
  
  \[(15)\]  
  a. Just do the dishes, and I will do the shopping before the kids get back.  
  ✓ laD, ✓ regular conjunction
  b. I do not like your attitude and, please, shut up.  
  regular conjunction (Txurrura 2003:(34))
Comparing regular conjunctions

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Conditional interpretation doesn’t follow from syntactic messiness like 𝜖Coordination-of-Likes (Chomsky 1957).
Aside: IaDs can maintain imperativity

(e(ndorsing) IaDs vs. n(on endorsing) IaDs

(Clark 1993, Kaufmann 2012, von Fintel & Iatridou 2017)

(16) Study hard and you’ll pass the test.
    incentive to study hard
    e-IaD

(17) Goof off and you’ll fail the test.
    incentive to not goof off
    n-IaD
    (or: if failing doesn’t matter - no incentive either way)
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**(endorsing) IaDs vs. (non endorsing) IaDs**

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**To show:** e-IaDs are an inhomogeneous class

Aside (cont’ed): e-IaDs can be speech act conjunctions

(18) Mow the lawn and I’ll give you 50 dollars.
≈ ‘Mow the lawn! If you mow the lawn, I will give you 50 dollars.’
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- Unlike Conditional Conjunction IaDs (CC-IaDs):
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- Unlike Conditional Conjunction IaDs (CC-IaDs):
  
  (Kaufmann 2012, Keshet & Medeiros 2018)

  – Compatible with *please* or tags *will you*
  – No NPI licensing or binding into the antecedent
Aside (cont’ed): e-laDs can be speech act conjunctions

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- Commitment to C2 conditional on content in C1 (⇒ laD)
- Imperative plays its usual role (‘directive’)
- Unlike Conditional Conjunction laDs (CC-laDs):

  (Kaufmann 2012, Keshet & Medeiros 2018)
  
  – Compatible with please or tags will you
  – No NPI licensing or binding into the antecedent

- Analysis:
Speech act conjunction + modal subordination (SC laDs).

Aside (cont’ed): CCs can be endorsing

Endorsing IaDs can have **CC characteristics** as long as there are no **SC characteristics**:
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- Binding from C2 into C1:  

  (20) [Give him\textsubscript{i} enough money(#, will you,)\textsubscript{,}] and [[every senator]\textsubscript{i}, no matter how honest, will give you access to his\textsubscript{i} files.]  

(Russell 2007:(27b))
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- **Generics:**
  1. Macy’s advertises a sale, and the whole town goes crazy.
     Bolinger (1967)
  2. Something happens in this town, and John knows about it.
     Keshet 2013:(6)
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- **Future metaphysical:**
  1. You take one more step, and I’ll shoot.
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  (Maybe Result. Too strong: Causation, Keshet, in view of (21b))
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  Bjorkman 2010

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C1 provides the restrictor for a quantificational operator within C2
CCs and (non-)epistemicity

(Bolinger 1967, Kaufmann 2012, Keshet 2013, . . .)

(24) #John left work at six, and he {is, must be} home by now.
CCs and (non-)epistemicity

(Bolinger 1967, Kaufmann 2012, Keshet 2013, …)

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Epistemic CCs improve (somewhat) in list environments List Effect

(✓German equivalent; English: 4:y/2:better/2:n):

(25) 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.
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   - Semantics of CCs

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   - Basic Facts
   - Proposing an Answer

4 In Favor of PI
   - Correlating IaDs...
Two types of approaches

- Restricting quantificational operator (Keshet 2013, Keshet & Medeiros 2018)
  CCs are ordinary conjunctions in the scope of a quantificational operator (conjuncts aren't entailed):
  \[(26) \text{Operator} \square [C_1 \text{and} C_2]\]

  CCs are ordinary hypothetical conditionals derived from a special (Starr: left-topicalizing) variant of and:
  \[(27) [C_1 \text{and} LS C_2]\]
Two types of approaches

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Two types of approaches: preview of my choices

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  \[
  [C_1 \text{ and}_{LS} C_2]
  \]
Issues for Restricting Quantificational Operator

- ✓ DaDs, IaDs: surface scope, non-directive
  
  \[(30)\quad \text{MOD}_{\text{Imp}/\text{GEN}} [C1 \text{ and } C2]\]

(Keshet & Medeiros 2018)
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- ✓ DaDs, IaDs: surface scope, non-directive
  
  (Keshet & Medeiros 2018)

\[(30)\quad \text{MOD}_{\text{Imp}/\text{GEN}} \; [\text{C1 and C2}]\]

- Q-adverbs: extracted from C2, rather than C1 as in regular conjunctions (Keshet 2013:225); embedding within C2, (32)

\[(31)\quad \begin{align*}
  \text{a. } & \text{You come on time and you } \underline{\text{usually}} \text{ get a seat.} \\
  \approx & \underline{\text{Usually}}, \text{ you come on time, and you get a seat.} \\
  \text{b. } & \text{She } \underline{\text{probably}} \text{ left and you just didn’t notice.} \quad (\text{his ii-a})
\end{align*}\]

\[(32)\quad \text{You come on time and you can be sure that you’ll } \underline{\text{always}} \text{ get a seat.}\]
Issues for Restricting Quantificational Operator

- ✓ DaDs, IaDs: surface scope, non-directive
  
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  \[(31)\]
  a. You come on time and you \textit{usually} get a seat.
     \(\approx\) Usually, you come on time, and you get a seat.
  b. She \textit{probably} left and you just didn’t notice. \(\text{(his ii-a)}\)

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- Questions about generalizing to other types:

  \[(33)\]
Issues for Restricting Quantificational Operator

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  (32)  You come on time and you can be sure that you’ll $\text{always}$ get a seat.

- Questions about generalizing to other types:

  (33)  $\text{SMaDs}$:
         You $\text{only have to}$ come on time and you $\text{will}$ get a seat.
Issues for Restricting Quantificational Operator

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(Keshet & Medeiros 2018)

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• Questions about generalizing to other types:

\[(33) \quad \text{NPaDs:} \\
\text{FUT [ One more song and I’m out of here.]}\]
Issues for Restricting Quantificational Operator

- ✓ DaDs, IaDs: surface scope, non-directive

(Keshet & Medeiros 2018)

\[(30)\] \(\text{MOD}_{\text{Imp}}/\text{GEN} [\text{C1 and C2}]\)

- Q-adverbs: extracted from C2, rather than C1 as in regular conjunctions (Keshet 2013:225); embedding within C2, (32)

\[(31)\] a. You come on time and you *usually* get a seat.

\[\approx \text{Usually, you come on time, and you get a seat.}\]

b. She *probably* left and you just didn’t notice. (his ii-a)

\[(32)\] You come on time and you can be sure that you’ll *always* get a seat.

- Questions about generalizing to other types:

\[(33)\] Q-adverbs in IaDs:

\[\text{MOD}_{\text{Imp}} [(\text{you}) \text{ come on time and you’ll *usually* get a seat.}]\]
An issue for *LS-and*

- Hypothetical readings for ‘C1. C2’:

  (34) a. Stand up. I’ll break your arm.  
      b. You call the cops, I break her legs.  

      a. I.D  
      b. D.D, Klinedinst & Rotschild 2015:(21)  
      c. D.D.D, US Dept. of Transportation
An issue for LS-*and*

- Hypothetical readings for ‘C1. C2’:
  
  (34) a. Stand up. I’ll break your arm.  
  b. You call the cops, I break her legs.  

  \[\text{D.D.D, US Dept. of Transportation}\]

- At least in list contexts, hypothetical readings for ‘C1. *Then* C2.’:

  (35) a. Sing one more song, *then* I’m out of here.  
  b. Say yes, *then* you have to pay. Say no, then he comes  
  again and again.  
  c. #Say yes, *and then* you have to pay. Say no, *and then* he  
  comes again and again.
Desideratum for an analysis

- Conditional readings are available for XaD, X.D, and XthenD
Desideratum for an analysis

- Conditional readings are available for XₐD, X.D, and XₜₜₐnD
- Shared property pending intonation for X (‘Conjunct 1’)
Desideratum for an analysis

- Conditional readings are available for XaD, X.D, and XthenD
- Shared property *pending intonation* for X (‘Conjunct 1’)

Proposal: Hypotheticality is driven by prosody.
Desideratum for an analysis

- Conditional readings are available for XaD, X.D, and X\textit{then}D
- Shared property \textit{pending intonation} for X (‘Conjunct 1’)

\textbf{Proposal:} Hypotheticality is driven by prosody.

- Limited role for \textit{and}: ordinary clausal conjunction, constrains discourse relations, which in turn constrains resolution of anaphora (e.g. domain restrictions of modals).

(\textit{Asher 1993, Txurruka 2003, Stojnic 2016})
Back to epistemic conditionals

CCs are infelicitous for epistemic conditionals (%: modulo lists)
CCs are infelicitous for epistemic conditionals (modulo lists)

- Ruled out by Restricting Quantificational Operator approach: epistemic modals/adverbials resist restriction through focus
  
  \[(Keshet 2013: (69a,c))\]

(36) John **must** have **DRIVEN** to work.
\(\not\Rightarrow\) If John went to work **in some way**, he **must** have driven to work.
Back to epistemic conditionals

CCs are infelicitous for epistemic conditionals (%: modulo lists)

- Ruled out by Restricting Quantificational Operator approach: epistemic modals/adverbials resist restriction through focus
  
  \( \text{Keshet 2013:(69a,c)} \)

\[(36) \quad \text{John must have DRIVEN to work.} \]
\[\not\Rightarrow \quad \text{If John went to work in some way, he must have driven to work.} \]

- Existing LS-\textit{and} theories: hypothetical update of belief state (\(\Rightarrow\) amounts to epistemic conditional - overgenerates)
CCs are infelicitous for epistemic conditionals (%: modulo lists)

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(Keshet 2013:(69a,c))

(36) John must have DRIVEN to work.

≮ If John went to work in some way, he must have driven to work.

- Existing LS-and theories: hypothetical update of belief state (⇒ amounts to epistemic conditional - overgenerates)

- List Effect suggests: epistemic conditionals are possible in principle but, out of the blue, fail certain discourse requirements (imposed by coordinating relation? - Asher 1993: ‘common discourse topic’)

Back to epistemic conditionals
More on CCs and their quantificational domain

- Generic conditionals should look outside of the belief state:

  (using a DaD from Keshet 2013:5a):

  \[\text{(37)}\] A guy owns a Ferrari, and he’s going to rack up a few speeding tickets. John’s no exception to this.
  a. If he were to own a Ferrari, he’d rack up a few speeding tickets.
  b. \#He doesn’t have one.
More on CCs and their quantificational domain

- Generic conditionals should look outside of the belief state:
  (using a DaD from Keshet 2013:5a):

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  a. If he were to own a Ferrari, he'd rack up a few speeding tickets.
  b. #He doesn't have one.

CC-‘Antecedent’ can, but need not, be a subset of epistemic possibilities.
Core idea of an analysis for CCs

- C1 sets an aboutness topic, C2 is interpreted with respect to that
  (Starr 2018)

Similar to referential analyses of regular hypothetical conditionals
(Schlenker 2003, Ebert, Endriss & Hinterwimmer 2014)
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  (Krifka 2004, Schwager 2006, Keshet 2013)
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- XaDs differ in what aboutness topic X contributes

  (Starr 2018)
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- CC-and signals a suitable discourse relation that influences anaphora resolution (Stojnic 2016)

- XaDs differ in what aboutness topic X contributes (Starr 2018)

- XaD contribute X-specific non-at-issue meaning (Keshet & Medeiros 2018)
Contexts

Context $c = \langle \text{Speaker, Addressee, World, Time, PC, QUD, G} \rangle$, where

- $\text{PC}(\alpha)$ the set of public commitments of each participant $\alpha$
Contexts

Context \( c = \langle \text{Speaker}, \text{Addressee}, \text{World}, \text{Time}, \text{PC}, \text{QUD}, G \rangle \), where

- \( \text{PC}(\alpha) \) the set of public commitments of each participant \( \alpha \)
- question under discussion \( \text{QUD} \), a set of propositions Roberts 1996
Contexts

Context $c = \langle \text{Speaker, Addressee, World, Time, PC, QUD, G} \rangle$, where

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Contexts

Context \( c = \langle \text{Speaker}, \text{Addressee}, \text{World}, \text{Time}, \text{PC}, \text{QUD}, G \rangle \), where

- \( \text{PC}(\alpha) \) the set of public commitments of each participant \( \alpha \)
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- \( G \) a variable assignments with slots representing salience ranking Stojnic 2016
- From PC we obtain the context set \( CS \) (the set of worlds compatible with mutual belief):
  \[ CS = \bigcap (\text{PC}(	ext{Speaker}) \cap \text{PC}(	ext{Addressee})). \]
Contexts

Context $c = \langle \text{Speaker}, \text{Addressee}, \text{World}, \text{Time}, \text{PC}, \text{QUD}, G \rangle$, where

- $\text{PC}(\alpha)$ the set of public commitments of each participant $\alpha$
- question under discussion QUD, a set of propositions Roberts 1996
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- From $\text{PC}$ we obtain the context set $\text{CS}$ (the set of worlds compatible with mutual belief):
  $\text{CS} = \bigcap (\text{PC}(\text{Speaker}) \cap \text{PC}(\text{Addressee}))$.

(building on Gunlogson 2003, Farkas-Bruce 2009, Kaufmann 2012, Lauer 2013, . . . )
Basic Conversational Moves

(38) \textsc{Commit}(p) \text{ updates a context } c \text{ by adding } p \text{ to } \text{PC(Speaker)} \text{ (the public commitments of the speaker).}
Basic Conversational Moves

(38) \textsc{Commit}(p) updates a context $c$ by adding $p$ to PC(Speaker) (the public commitments of the speaker).

(39) \textsc{Referent}_{X_1, \ldots, X_n}(\phi) updates G by
\begin{enumerate}
  \item storing in $X_1, \ldots, X_n$ what is made salient by $\phi$, with $n \geq 1$ and $\llbracket \phi \rrbracket^c = X_m$ for some $1 \leq m \leq n$, and
  \item moving all original values $m$ into $m + n$.
\end{enumerate}
Basic Conversational Moves

(38) **Commit**$(p)$ updates a context $c$ by adding $p$ to PC(Speaker) (the public commitments of the speaker).

(39) **Referent**$_{X_1,\ldots,X_n}(\phi)$ updates $G$ by

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b. moving all original values $m$ into $m + n$.

(Commit, Referent modeled after Ebert, Endriss, Hinterwimmer 2014, adding ranking for Referent)
Context update principles

(FI)  *Falling Intonation* A linguistic object that expresses a proposition \( p \) that is uttered with commitment marking is integrated into the context with \( \text{COMMIT}(p) \).
In English, commitment is marked by final \( \text{H}^* \text{L-L}{}^\% \), Rudin 2018.

(modeled after Gunlogson 2003, Lauer 2013, Rudin 2018)

(PI)  *Pending Intonation* A linguistic object \( \phi \) uttered with pending intonation is integrated into the context by \( \text{REFERENT}_X(\phi) \).
Tentatively, in German, Pending Intonation as \( \text{L}^* \text{H-} \).
Context update principles at work

Adjusted from Ebert, Endriss & Hinterwimmer 2014

German Left-Dislocated Topic:

(40) \([\text{Den Pfarrer}_x, [\text{den}_x \text{ kann keiner leiden}.]]\)
\[\text{The-ACC pastor} \quad \text{RP-ACC can} \quad \text{nobody like}\]
\[\text{‘The pastor nobody likes.’}\]

(41) \(\text{REFERENT}_x(\forall y \text{ pastor}(y)) \land \text{COMMIT}(\lambda w. \text{nobody likes } x \text{ in } w)\)
Context update principles at work

Adjusted from Ebert, Endriss & Hinterwimmer 2014

German Left-Dislocated Topic:

(40) \[\text{[Den Pfarrer]}_x, \text{[den}_x \text{ kann keiner leiden.]}\]
The-ACC pastor RP-ACC can nobody like
‘The pastor nobody likes.’

(41) \[\text{REFERENT}_x(\forall y \text{ pastor}(y)) \land \text{COMMIT}(\lambda w.\text{nobody likes } x \text{ in } w)\]

Regular hypothetical conditional:

(42) \[\text{[If you study hard]}_x, (\text{then}_x) \text{ you will pass the exam.}\]

(43) \[\text{REFERENT}_x(\lambda w.\text{Addressee studies hard in } w \land w \in \text{CS}) \land \text{COMMIT}(\lambda w.\forall w' \in X[\text{Addressee passes the exam } w'])\]
Context update principles at work in CCs

DaD with future metaphysical *will*:

(44) [You study hard]$_X$ [and you will$_c$ pass the exam.]

(45) $\text{REFERENT}_X(\lambda w.\text{Addressee studies hard in } w) \land$
    $\text{COMMIT}(\lambda w.\text{WILL}_w(X)(\lambda w'.\text{Addressee passes exam in } w'))$
DaD with future metaphysical *will*:

(44) [You study hard]$_X$ [and you will$_C$ pass the exam.]

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Assumptions:

- *and* requires that $C$ is resolved to first propositional referent in sequence, here: $X$. 
Context update principles at work in CCs

DaD with future metaphysical *will*:

(44) [You study hard]_{X} [and you will \textit{c} pass the exam.]

(45) \textsc{REFERENT}_{X}(\lambda w. \text{Addressee studies hard in } w) \land \\
\textsc{COMMIT}(\lambda w. \text{WILL}_{w}(X)(\lambda w’. \text{Addressee passes exam in } w’))

Assumptions:

- *and* requires that \( C \) is resolved to first propositional referent in sequence, here: \( X \).
- *will* contributes restriction to epistemic possibilities
Context update principles at work in CCs

DaD with future metaphysical *will*:

(44) [You study hard]_X [and you will]_C pass the exam.]

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Assumptions:

- *and* requires that *C* is resolved to first propositional referent in sequence, here: *X*.
- *will* contributes restriction to epistemic possibilities
- to add: C1 has to be simple present, as in *if*-clauses (historical necessity, Kaufmann 2005)
Context update principles at work in CCs

DaD with future metaphysical \textit{will}:

(44) \[\text{[You study hard]}_X \text{[and you will}_C \text{pass the exam.]}\]

(45) \[
\text{REFERENT}_X(\lambda w.\text{Addressee studies hard in } w) \land \\
\text{COMM}_{\text{MIT}}(\lambda w.\text{WILL}_w(X)(\lambda w'.\text{Addressee passes exam in } w'))
\]

Assumptions:

- \textit{and} requires that \( C \) is resolved to first propositional referent in sequence, here: \( X \).
- \textit{will} contributes restriction to epistemic possibilities
- \textit{to add}: \( C1 \) has to be simple present, as in \textit{if}-clauses (historical necessity, Kaufmann 2005)
- \textit{Binding into \( C1 \): }\langle e, \langle s, t \rangle \rangle\text{-topic to constrain QP-domain in \( C2 \)
1 Introduction
   - Types of CCs
   - Side remarks on types of IaDs
   - Semantics of CCs

2 Analyzing CCs
   - Existing Accounts
   - A Topic Analysis of CCs

3 The Missing Modal Puzzle
   - Basic Facts
   - Proposing an Answer

4 In Favor of PI
   - Correlating IaDs...
CCs are semantically messy conjunctions

(46) If you sing one more song, I’m out of here.

CCs expressing this differ in what feeds into the antecedent:
CCs are semantically messy conjunctions

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CCs expressing this differ in what feeds into the antecedent:
• for DaDs, the first conjunct:
  (47) You sing one more song and I’m out of here.
CCs are semantically messy conjunctions

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CCs expressing this differ in what feeds into the antecedent:
• for DaDs, the first conjunct:
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• for NPaDs, the first conjunct and contextually given material
  (48) One more song and I’m out of here.
CCs are semantically messy conjunctions

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CCs expressing this differ in what feeds into the antecedent:

• for DaDs, the first conjunct:

  (47) You sing one more song and I’m out of here.

• for NPaDs, the first conjunct and contextually given material

  (48) One more song and I’m out of here.

• for IaDs and SMaDs, only part of the first conjunct

  (49) \((OP_{Imp})\) Sing one more song and I’m out of here.

  (50) You only have to sing one more song and I’m out of here.
Imperatives and sufficiency modals vs. other modals

- IaDs and SMaDs...

(51) If you sing one more song, I’m out of here.

a. \((OP_{imp})\) Sing one more song and I’m out of here.

b. You only have to sing one more song and I’m out of here.
Imperatives and sufficiency modals vs. other modals

• IaDs and SMaDs...

(51) If you sing one more song, I’m out of here.
    a. (OP<sub>Imp</sub>) Sing one more song and I’m out of here.
    b. You only have to sing one more song and I’m out of here.

• ...differ from regular modals in DaDs:

(Kaufmann 2012, von Fintel & Iatridou 2017, Starr 2018)

(52) #You have to/should/must sing one more song and I’m out of here.
    ≈ ‘If you have to/should/must sing one more song, then I’m out of here.’
Imperatives and sufficiency modals vs. other modals

- **IaDs and SMaDs...**
  
  (51) If you sing one more song, I’m out of here.
  a. \((OP_{Imp})\) Sing one more song and I’m out of here.
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- ...differ from regular modals in DaDs:

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  (52) #You have to/should/must sing one more song and I’m out of here.
  \(
  \approx \text{‘If you have to/should/must sing one more song, then I’m out of here.’}
  \)

---

The Missing Modal Puzzle (MMP)

- Imperatives, sufficiency modals: the modal meaning does not feed into the antecedent
- For all other modals, it does
(their 57, strengthened) No part of a clause may be entirely idle in determining the meaning of a sentence.
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- LS-\textit{and} in CCs does not entail C1, but C1 provides context for C2 \(\rightarrow\) \(\checkmark\) not idle
Borrowing from LS-\textit{and} Klinedinst & Rothschild (2015) for DaDs

\begin{itemize}
\item (their 57, \textit{strengthened}) No \textbf{part of a clause} may be entirely idle in determining the meaning of a sentence.
\item LS-\textit{and} in CCs does not entail C1, but C1 provides context for C2 $\rightarrow \checkmark$ not idle
\item Usually all of C1 has to be used
\end{itemize}
Borrowing from LS-*and*

(Their 57, strengthened) No part of a clause may be entirely idle in determining the meaning of a sentence.

- LS-*and* in CCs does not entail C1, but C1 provides context for C2 → ✓ not idle
- Usually all of C1 has to be used
- Disjunctions with related effects always endorse C1, ok to use only part of C1 as context of C2

(53) John must **pay alimony**, or he will be arrested.
≈ John must pay alimony. If **John does not pay alimony**, he will be arrested.

Klinedinst & Rothschild 2015:(89)
Borrowing from LS-\textit{and}

(Their 57, strengthened) No \textbf{part of a clause may be entirely idle in determining the meaning of a sentence.}

- **LS-\textit{and}** in CCs does not entail C1, but C1 provides context for C2 \(\rightarrow\) \(\checkmark\) not idle
- Usually all of C1 has to be used
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(53) John must pay \textit{alimony}, or he will be arrested.
\(\approx\) John must pay alimony. If John does not pay alimony, he will be arrested.

Klinedinst & Rothschild 2015:(89)

- Why can IaD CCs and SMaD CCs use a proper part of C1?
Modifying the Idleness Constraint

- If only part of C1 were used as the referent w.r.t. which C2 gets interpreted, the rest risks idling.
Modifying the Idleness Constraint

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Modifying the Idleness Constraint

- If only part of C1 were used as the referent w.r.t. which C2 gets interpreted, the rest risks idling.

\[\text{NO IDLING}\]

\[\Rightarrow\] In CCs, ‘regular’ modals have to be part of the antecedent referent.
Modifying the Idleness Constraint

- If only part of C1 were used as the referent w.r.t. which C2 gets interpreted, the rest risks idling.

  ⇒ In CCs, ‘regular’ modals have to be part of the antecedent referent.

- *only have to* and $OP_{Imp}$ contribute non-at-issue meaning (presuppositions) that render the modal layer not idle even if the modal quantification does not become part of the antecedent referent.
Imperative semantics

(Kaufmann 2012, 2016)

- Imperatives contain a modal operator $OP_{imp}$
  - interpreted as a standard (necessity) modal (Kratzer 1991)
  - triggers presuppositions that lead to non-descriptive discourse effects
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- Example $\llbracket \text{Sleep!} \rrbracket^c = \llbracket [ \text{OP}_{imp} R \text{ you sleep}] \rrbracket^c = 1$
  iff $\forall w \in R(\text{World}_c)[\text{you sleep in } w]$, (with $R = \llbracket R \rrbracket^c$)
  presupposes that
Imperative semantics

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- Example $[[Sleep!]]^c = [[[ OP_{imp} R ] [you sleep] ]]^c = 1$
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  (with $R = [[R]]^c$)
  presupposes that
  - accessibility relation $R$ represents deontic, bouletic, teleological modality
Imperative semantics

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  \[ \text{iff } \forall w \in R(\text{World}_c)[\text{you sleep in } w], \]
  presupposes that
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(Kaufmann 2012, 2016)

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  - $R$ is considered decisive (‘guides choice’)

(Kaufmann & Kaufmann 2014, Kaufmann 2016)
CC IaDs in the Prosody-Driven Topic Theory

Role for imperative C1 ‘OP_{imp} φ’

- $[[φ]^c$ is stored as the topmost propositional referent $X_1$ ($\approx$ aboutness topic).
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- $[[\phi]^c$ is stored as the topmost propositional referent $X_1$ ($\approx$ aboutness topic).
- contextual restriction of an operator in C2 is resolved to $X_1$.
- QUD$_c$ is of the form “What will addressee do?”
- There is a salient deontic, bouletic, or teleological modality that guides the addressee’s choice (≠ the modal flavor of the conditional operator WILL/GEN/usually,...) and that the speaker is knowledgeable about.
Evidence for active imperative meaning in IaDs

Keshet & Medeiros (2018): experimental evidence that DaDs are preferred over IaDs in CCs that do not contribute to choice of action:
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- **Present Context:**

  (54) 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.
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- **Future Context:**
  
  (55) *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.
SMaDs in the Prosody-Driven Topic Theory

- von Fintel & Iatridou (2007) observe that crosslinguistically only have to alternates with NEG MUST EXCEPTIONE (Greek, French, . . . )

(56)  
  a. *you only have to p ≈*  
  b. *you don't have to do more than*
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- Both types of constructions have a “diminishing function”

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- **To work out:** Diminishing effect counts as contribution of *only have to/*not have to do more than.*
Overgenerating for IaDs and SMaDs?

- Modals fail to contribute non-at-issue meaning  
  ⇒ have to be part of topic (‘antecedent’)
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  (≈ Starr 2018)
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- **Option 1:** (≈ Starr 2018)
  - Imperatives and Sufficiency modals introduce referents for their *prejacent* (*you sing another song*), but not the *modal proposition* they express (*that you only have to sing another song*/ *that it is best if you sing another song*);
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  - They all introduce both referents, but these are ranked differently for salience, top-most referent selected in CCs.

- Tentatively: in favor of Option 2...
Referents for the entire family

- *only have to* contributes referent of full modal meaning for *that*-anaphora

(58) You only have to go to the North End to get good bread, don’t you know *that*?
Referents for the entire family

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(58) You only have to go to the North End to get good bread, don’t you know *that*?

- Maybe even imperatives do  

(59) A: How do I get to Harlem?  
B: Take the A-train.  
A: *That*[≈*that taking the A-train is a good option*]’s right.
1 Introduction
   • Types of CCs
   • Side remarks on types of IaDs
   • Semantics of CCs

2 Analyzing CCs
   • Existing Accounts
   • A Topic Analysis of CCs

3 The Missing Modal Puzzle
   • Basic Facts
   • Proposing an Answer

4 In Favor of PI
   • Correlating IaDs...
More generalizations over X

- IaDs—a window into the semantics of imperatives?
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  (60) \((higher\ rank/parent/. . .)\):
  \(Get\ up!\) \hspace{1cm} \text{Command}

  (61) A: Can I get up?
  B: \text{Sure, go ahead, get up.}\hspace{1cm} \text{Acquiescence}

  (62) \(Get\ up,\ don’t\ get\ up\ -\ what\ do\ I\ care.\)
  \(\text{(for ‘whatever you do’)}\) \hspace{1cm} \text{Indifference}
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  (for ‘whatever you do’)  
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- Some suppletive imperatives have to be commands (**strong directives**)
Correlations for IaDs?

- One-way correlation based on ‘weakness’ -?

(63) von Fintel & Iatridou’s (2017:(86)):
Any form that can be used in IaDs can also be used with an acquiescence reading.
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- Oikonomou (2016) suggests two-way correlation between “l” aDs and Indifference

- Indifference and CCs share non-commitment intonation
  (German: end in high phrase accent; possibly same L* H-, Carline Féry, p.c.)
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• Oikonomou (2016) suggests two-way correlation between “I” aDs and INDIFFERENCE

• INDIFFERENCE and CCs share non-commitment intonation
   (German: end in high phrase accent; possibly same L* H-, Carline Féry, p.c.)

• Hypothesis: Strong directives need Pending Intonation to be ‘imperative-like’ (even for CC and INDIFFERENCE-purposes)
### Indifference ⇔ “I” aD?


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- Absence of connective or then allow for similar effects (–differences to be investigated)
- Pending Intonation suggest assimilating CCs to Indifference Sequences
- Open issues: tense/aspect, List Effect, Languages without CCs (Japanese to-conditionals seem to have the meaning of CCs), intonational patterns in CCs crosslinguistically,…
The End

Thank you!
German Particples

(64) Jetzt aber! Aufgestanden!
now but get.up.PAPA
roughly: ‘Hurry up, get up right away!’

Command

(65) (A and B are working together on something for which they normally sit. - A: My legs are falling asleep. Can I stand up for a moment?)

sure, get.IMP up. Me.DAT disturb-it not
‘Sure, get up. I don’t mind.’

sure, get.up.PAPA Me.DAT disturb-it not

Acquiescence

(66) Einmal nicht aufgepasst, und schon hat man eine
one.time not be-attentive.PAPA and already has one an
Eintragung ins Klassenbuch abkassiert!
entry into class register gotten
‘Don’t pay attention just one time and you’ve earned yourself an entry
into the class register.’

PaPaaD
Acknowledgements

For discussion of data and theory, I am grateful to the audiences at the workshop *Non-Canonical Imperatives* (HU Berlin) (May 26, 2018), a presentation for *Konjunktion und Disjunktion aus typologischer Perspektive* at the University of Vienna (Jul 13, 2018), the *NINJAL colloquium* (Sep 16, 2018) and the *Nagoya Semantics Circle* (Sep 23, 2018), the participants of my Fall 2018 semantics seminar at UConn, as well as (partially overlapping but for independent discussions): Sarah Asinari, Dorit Bar-On, Željko Bošković, Elena Castroviejo-Miró, WooJin Chung, Ömer Demirok, Caroline Féry, Itamar Francez, Jon Gajewski, Jared Henderson, Harry van der Hulst, Julie Hunter, Robin Jenkins, Ivana Jovović, Dalina Kallulli, Stefan Kaufmann, Ezra Keshet, Robert Külpmann, Kelsey Kraus, Lily Kwok, Dan Lassiter, Elin McCready, Marie-Christine Meyer, Despina Oikonomou, Jayeon Park, Deniz Rudin, Viola Schmitt, Nic Schrum, Felix Schumann, Greg Scontras, Peter Sells, Yael Sharvit, Frank Sode, Adrian Stegovec, Una Stojnić, Joe Tabolt, Jos Tellings, Ede Zimmermann, and Sarah Zobel. The usual disclaimer applies.


References III


