Tomorrow is not always a day away

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Non-utterance time uses of `tomorrow'
Non-utterance time uses of ‘tomorrow’

Utterance time referent:
Athena is going to water my plants tomorrow.
I hope she does!

Non-utterance time referent:
Last week, Athena said that she would water my plants tomorrow, but she never did.
Non-UT examples in corpus data

Krause: Also listening last night, Dave Wiethop, news editor at the Fulton Sun. He [...] decided not to lead this morning’s paper with the President’s speech.

Wiethop: I played Bush pretty low because like I said, we didn’t hear anything that we hadn’t heard before. If he said we were going to bomb Baghdad tomorrow morning, I think that might have been my lead story there.

(PBS NewsHour, taken from COCA)
Indexicality

Indexical: referring relative to the context of utterance and not to the circumstances of evaluation, the ‘actual and counterfactual situations with respect to which it is appropriate to ask for the extensions of a well-formed expression’ (Kaplan 1989).

Indexicals refer relative to the context parameter.
Anaphoricity

**Anaphoric**: referring relative to a discourse-given reference point.

?Jane will cook the next day.

On Tuesday Jane will go shopping, and she will cook the next day.
Indexical or anaphoric?

Indexical hypotheses
• Free Indirect Discourse effect
• Shifty indexical

Anaphoric hypotheses
• Anaphoric to a time
• Anaphoric to a salient perspective
Free Indirect Discourse

Free Indirect Discourse: a pragmatic convention in which a narrator takes on the perspective of a main character.

Mrs. Dalloway said she would buy the flowers herself.

For Lucy had her work cut out for her. The doors would be taken off their hinges; Rumpelmayer’s men were coming. And then, thought Clarissa Dalloway, what a morning—fresh as if issued to children on a beach.

What a lark! What a plunge! For so it had always seemed to her, when, with a little squeak of the hinges, which she could hear now, she had burst open the French windows and plunged at Bourton into the open air.

(Mrs. Dalloway; Woolf 1925)
Free Indirect Discourse

Conventions of Free Indirect Discourse

• Tense and aspect are from the narrator’s perspective
• 1st-person pronouns refer to the narrator
• Temporal and locative adverbials are relative to the protagonist
• Expressives, epithets, and other perspectival expressions are from the protagonist’s point-of-view

(Banfield 1982; Eckardt 2015)
Indexical Shift

**Indexical shift:** when embedded under a speech or attitude verb, indexicals refer relative to the context parameter of the embedded context rather than the matrix context (Schlenker 2003; Quer 2005; Deal 2014; Anand & Nevins 2014).

*Context: It is January 8th.*

cinan cwu-ey Mary-ka nwuka nayil last week-in Mary-NOM who-NOM tomorrow ttenanta-ko malhayss-ni? leave-C said-Q

‘Who did Mary say a week ago would leave on January 2nd/9th?’ (Park 2016)
Indexicality and quantificational binding

*Obama-ka malhal ttyaymyun manhun Obama-NOM speaks when many salamtul-i cikum pakswuchinta. people-NOM now clap

Intended:

‘When Obama speaks, many people clap now’ (Park 2016).
Anaphoricity and quantificational binding

Times
Every time it snows, my car is very icy the next day.

Perspectives (Barlew 2017)
Every woman was glad that her wayward child came to Christmas dinner.
## Predictions of different analyses

<table>
<thead>
<tr>
<th>Analysis</th>
<th>1st-person pronouns</th>
<th>Unembedded</th>
<th>Quantificational binding</th>
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</thead>
<tbody>
<tr>
<td>Free Indirect Discourse</td>
<td>X</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>Shifty Indexical</td>
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</tr>
<tr>
<td>Time anaphoric</td>
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</tr>
<tr>
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<td>✓</td>
<td>✓</td>
<td>?</td>
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</tbody>
</table>
Experiment 1: Establishing a baseline

Aidan said that he would bring the keys {tomorrow / the next day}.
Rate the following sentence as a caption for the third panel:

Kate is worried because Aidan said that he would bring the keys {tomorrow / the next day/ Monday/ Tuesday}. 
Experiment 1 design

• Task: rate the target sentence as a caption for the third panel on a 7-point Likert scale
• 6 items in each of 4 conditions, for a total of 24
• Four conditions:
  ❖ True control: day-of-week name for 2nd panel
  ❖ False control: day-of-week name for 1st panel
  ❖ Anaphoric condition: the next day
  ❖ Critical condition: tomorrow
• Preregistered through the Open Science Foundation
Experiment 1 fillers

- Truth-conditionally true
- True but pragmatically ill-formed
- Truth-conditionally false
Participants

• Recruited on Amazon’s Mechanical Turk Platform
• N=72
• Fairly diverse age and geographic spread

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-25</td>
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<tr>
<td>25-35</td>
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<td>35-45</td>
<td>17</td>
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<td>45-55</td>
<td>12</td>
</tr>
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<td>55-65</td>
<td>5</td>
</tr>
<tr>
<td>65-75</td>
<td>2</td>
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</table>
Exp. 1 Means by Condition
**Exp. 1 Post-hoc Mixed Effects Analysis**

<table>
<thead>
<tr>
<th>Condition</th>
<th>$\hat{\beta}$</th>
<th>$z$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>False control</td>
<td>-2.78(+/- 0.29)</td>
<td>-9.5</td>
<td>&lt; 0.00001</td>
</tr>
<tr>
<td>True control</td>
<td>2.25(+/- 0.33)</td>
<td>6.74</td>
<td>&lt; 0.00001</td>
</tr>
<tr>
<td>the next day</td>
<td>1.34(+/- 0.25)</td>
<td>5.45</td>
<td>&lt; 0.00001</td>
</tr>
<tr>
<td>Pragmatically sub-par fillers</td>
<td>-1.53(+/-0.27)</td>
<td>-5.59</td>
<td>&lt; 0.00001</td>
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</tbody>
</table>
Exp. 1 Participant Means by Condition
Interpretation

For some speakers, non-utterance time interpretations of tomorrow are possible, at least in attitude contexts.

Some speakers do not accept non-UT tomorrow.

Even speakers who do accept non-UT tomorrow tend to rate it less highly than the temporal anaphoric expression the next day.
Rate the following sentence as a caption for the third panel:

Kate is worried because Aidan said that he would bring the keys {tomorrow / the next day/ Monday/ Tuesday}. 
Experiment 2: Free Indirect Discourse

Temporal indexicals like *tomorrow* are known to receive non-utterance time interpretations in Free Indirect Discourse contexts, where they are interpreted relative to the *now* of the protagonist, rather than the narrator.

Are these non-utterance time uses of *tomorrow* simply due to Free Indirect Discourse?
# Predictions of different analyses

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Experiment 2 item

Rate the following sentence as a journal entry for the third day:

Kevin is angry because I said that I would water his plants {tomorrow / the next day / Friday / Saturday}. 
Exp. 2 Methods

- Same methods as Experiment 1
- Smaller number of participants (N=48)

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<td>35-45</td>
<td>14</td>
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<td>45-55</td>
<td>7</td>
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<td>55-65</td>
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<tr>
<td>65-75</td>
<td>1</td>
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Exp. 2 Means by Condition
## Exp. 2 Post-hoc Mixed Effects Analysis

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<tbody>
<tr>
<td>False control</td>
<td>-4.51(+/- 0.45)</td>
<td>-9.9</td>
<td>&lt; 0.00001</td>
</tr>
<tr>
<td>True control</td>
<td>1.58 (+/- 0.42)</td>
<td>3.8</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>the next day</td>
<td>1.41(+/- 0.40)</td>
<td>3.6</td>
<td>&lt; 0.001</td>
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<tr>
<td>Pragmatically sub-par fillers</td>
<td>-2.46(+/-0.39)</td>
<td>-6.4</td>
<td>&lt; 0.00001</td>
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</table>
Exp. 2 Participant Means by Condition
Interpretation

The use of first-person pronouns does not affect ratings of non-utterance time instances of *tomorrow*, which shows that they are not due to Free Indirect Discourse effects.
Experiment 3: Indexical Shift

Perhaps non-UT interpretations of *tomorrow* are due to indexical shift, since all examples seen so far occur under attitude verbs.
### Predictions of different analyses

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</table>
It was such a simple chore to return Kevin’s pan {tomorrow / the next day/ Tuesday / Wednesday}! But I totally forgot!
Exp. 3 Methods

- Same methods are Experiments 1 and 2
- Same sample size as Exp. 2 (N=48)
- Less geographic diversity than previous experiments

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<td>65-75</td>
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Exp. 3 Means by Condition
Post-hoc Exp. 1 to Exp. 3 comparison using mixed-effects regression analysis, fixed effects and interactions

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<td>6.5</td>
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</tr>
<tr>
<td>the next day</td>
<td>1.50 (+/- 0.33)</td>
<td>4.5</td>
<td>&lt; 0.00001</td>
</tr>
<tr>
<td>Exp. 3</td>
<td>-1.72 (+/- 0.47)</td>
<td>-3.6</td>
<td>0.0002</td>
</tr>
<tr>
<td>False control * Exp. 3</td>
<td>0.35 (+/- 0.53)</td>
<td>0.7</td>
<td>0.5</td>
</tr>
<tr>
<td>True control * Exp. 3</td>
<td>0.87 (+/- 0.52)</td>
<td>1.7</td>
<td>0.09</td>
</tr>
<tr>
<td>the next day * Exp. 3</td>
<td>0.97 (+/- 0.47)</td>
<td>2.1</td>
<td>0.04</td>
</tr>
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</table>
Exp. 3 Participant Means by Condition
Interpretation

Results from Experiment 3 were mixed.

The mean ratings for *tomorrow* were significantly lower in Exp. 3 compared to Exp. 1, and they were lower than the pragmatically subpar fillers.

However, a substantial group of participants did accept non-utterance time *tomorrow* even though it was not embedded under a speech verb. This is unexpected under an indexical shift analysis.
## Interim Findings

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Anaphoric to what?

Times

Every time it snows, my car is very icy the next day.
Every time it rains, the streets are flooded tomorrow.
Exp. 2 Quantificational Binding Stimuli

Time
Every time {I / Kevin} wash(s) {my / his} car, it rains {tomorrow / the next day}

Speech context
Every time the UPS person says that {my / the} package has been delivered, it doesn’t show up until {tomorrow / the next day}
Quantificational Binding Task Results
What else is left?

Could *tomorrow* be anaphoric to salient perspectives?
What does perspectival anaphoricity look like?

Perspectival motion verbs like *come* can be anchored in the event-time or utterance-time perspective of the speaker or addressee, or in the perspective of an attitude-holder (Barleew 2017).

*Jyoti and Carolyn share an office. Carolyn consistently works in their office, while Jyoti often works from home. They run into each other at the Roost.*

Carolyn: Are you planning on *coming* in to the department tomorrow?
What else is left?

Could *tomorrow* be anaphoric to salient perspectives?

**Predictions**
- Acceptable under speech verbs
- Acceptable in non-embedded contexts if a salient perspective is available
- Quantificational binding is possible if perspectives covary with the quantifier
Is *tomorrow* perspectival?

Could *tomorrow* be anaphoric to salient perspectives?

**Quantificational binding**
On Christmas Eve, every little girl stays awake for hours wondering what she will find under the Christmas tree tomorrow morning.

**Maintain perspective constraints** (Harris 2012)
Every time you have to kick a drunk idiot out of the bar, you get to gloat about how hungover they'll be tomorrow.

**Explore other non-utterance time perspectives**
- Event-time speaker
- Utterance-time speaker mistaken about temporal location
Conclusion

Speaker perspective at event-time is critical:

Martha and Amy are talking to each other on the bus. Martha is telling Amy about meeting up with a guy she met online. When he messaged me last week, we made plans to meet up tomorrow, but then he had to postpone until yesterday.

When I arrived, the bar was very crowded, but I managed to snag a table before Lawrence came.
Licensing environments

Perspectival expressions

Indexical shift

Non-shifting indexicals
Acknowledgments

Thank you to:

- Brian Dillon, Daniel Altshuler, and John Kingston
- Vincent Homer, Kristin Syrett, Emar Maier, Amy Rose Deal and Ming Xiang
- The UMass Psycholinguistics Workshop
- The CUNY 2018 reviewers and audience
- The SuB reviewers

Thank you for listening!
References

• Deal, Amy Rose. (2014). “Nez Perce embedded indexicals.” SULA.
Athena is frustrated because she is bored.
Replication

Methods
• Larger sample size (N=80)
• Comics modified so that *tomorrow* does not appear:

Experiment 2

Monday

I'll give you the keys tomorrow.

Replication

Monday

I can't give you the keys today, but I'll drop them off in the morning.