Theoretical approaches to hyperraising

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Overview of lecture #2

- Empirical underpinnings of the A vs.  \( \overline{A} \) distinction.
- Positional vs. featural definition of syntactic positions.
- Featural definition of syntactic positions: empirical motivation from Dinka (van Urk, 2015).
  - Background: composite/fused probes (Coon & Bale, 2014).

1 The A/\( \overline{A} \) distinction

(The examples are partially based on Safir 2019, p. 287.)

1 Triggering of T-agreement

a. As crianças parecem \( \text{[Maria]} \) ter visto a Maria.  
   the children seem-PL to have seen the Maria
   ‘The children seem to have seen Maria.’ \( A \)-movement

b. * Quais crianças\( \text{[Maria]} \) viram a Maria?  
   which children\( \text{[Maria]} \) saw the Maria
   ‘Which children is it clear that saw Maria?’ \( \overline{A} \)-movement

2 Bypassing of higher, intervening DPs

a. * As crianças\( \text{[Maria]} \) ter visto a Maria.  
   the children\( \text{[Maria]} \) to have seen the Maria
   ‘It seems that Maria saw the children.’ \( A \)-movement

3 Pied-piping allowed

a. * [P Sobre as crianças\( \text{k} \) foram perguntadas\( t_k \).  
   [about the children\( \text{k} \) be.PST-PL asked
   ‘The children were asked about.’ \( A \)-movement

b. [P Sobre quais crianças\( \text{k} \) foram feitas perguntas\( t_k \)?  
   [about which children\( \text{k} \) were asked questions
   ‘About which children were questions asked?’ \( \overline{A} \)-movement

4 Creation of new antecedents for binding

a. Infelizmente, nenhum aluno\( \text{k} \) parece pro orientador dele\( t_k \) ter ido bem na prova.  
   unfortunately no student\( \text{k} \) seems for the advisor\( \text{of.his} \) to have gone well in the test
   ‘Unfortunately no student\( t_k \) seems to his\( t_k \) advisor to have done well in the test.’  
   (Unfortunately, there is no student\( x \) such that it seems that it seems to\( x_s \)’s advisor”  
   (not: For which student\( x \) did\( x_s \)’s advisor say that done well in the test?) \( A \)-movement

b. Qual aluno o orientador dele disse que\( t_k \) foi bem na prova?  
   which student the advisor\( \text{of.his} \) said that did well in the test?
   ‘Which student\( t_k \) did his\( t_k \) advisor said that did well in the test?’  
   (NOT: For which student\( x \) did\( x_s \)’s advisor say that did well in the test?) \( \overline{A} \)-movement

5 Licensing of parasitic gaps

a. * Os bolinhos\( \text{m} \) parecem ter crescido sem as crianças\( \text{PL} \) to have grown  
   without the children\( \text{PL} \)
   ‘The pastry dough seems to have risen without the children devouring it first.’ \( A \)-movement

b. O que o João cozinhou\( t_k \) sem devourar PG?  
   what the João cooked without devour  
   ‘What did João cook without devouring?’ \( \overline{A} \)-movement

6 Weak crossover effect induced

a. A Maria\( k \) parece pra mãe dela\( t_k \) ser a candidata ideal pro  
   the Maria\( k \) seem for the mother\( \text{of.she} \) to be the candidate ideal for the  
   emprego.  
   job
A movement

b. Quem a mãe dele ama tk?
who the mother of his love
‘Who does his tk/1 mother love?’

A-movement

a. A história do João parece pra ele tk ser uma piada.
the story of João seems for he to be a joke
João’s story seems to him to be a joke.

A-movement

b. Qual história do João ele odeia tk?
which story of the João he hates
‘Which story of João’s does he tk hate?’

A-movement

\[ \text{[Safir 2019, tab. 1]} \]

1.1 Theoretical approaches to the A vs. A distinction

A. Two ways to view the A vs. A distinction:

1. The distinction is inherent: it is simply a primitive property of universal grammar that we must reckon with.
   - This is the common view, both under Government & Binding and Minimalism.
   - This view can also be referred to as positional view (as opposed to featural view below).

2. The distinction is derivative: some other, more general properties of universal grammar interact in such a way that a byproduct is the A vs. A distinction.
   - Featural definition of syntactic positions (van Urk, 2015): a movement is A or A depending on the type of feature that triggers it.
   - The distinction emerges as an epiphenomenon; it results from the conspiracy between other principles and mechanisms independently available in the grammar (Safir, 2019).

B. Positional view: syntactic positions are inherently A or A.
   - A-position: left periphery and (phase) edge positions.

C. More recent, minimalist take (Chomsky, 2008) of the positional view:
2 van Urk (2015): a featural definition of syntactic positions

A. Overview

- Assumption: every instance of movement is created by Agree ad Merge. What differs is the type of feature that triggers Agree.
- The properties of a given syntactic position cannot be defined prior to the operations that create it. Rather, these properties depend on the features that trigger these operations.
- Empirical motivation for the proposal: movement in Dinka has hybrid properties, i.e., the properties of both $A$- and $\bar{A}$-movement.

B. A uniform view of phrasal movement

1. **Agree:** the trigger [F] finds the (closest) phrase bearing the same feature [F].
2. **Merge:** the trigger attracts the phrase.

D. Featural view (van Urk 2015; see also Obata & Epstein 2011)

- Syntactic positions are not inherently $A$ or $\bar{A}$.
- This property depends on the type of feature that creates the position.
  - Position created by the valuation of $\phi$-features: $A$ position.
  - Position created by the valuation of $\bar{A}$-features (e.g., Wh, Topic, Focus, etc): $\bar{A}$ position.

C. Proposal: differences in movement are due to the differences in features.

D. Predictions

- If a position is created by both $\phi$- and $\bar{A}$-features, it will show the properties of both $A$- and $\bar{A}$-movement.
  - van Urk shows that this is the case in Dinka (Nilotic), where movement displays exactly these hybrid properties.
The same position $P$ may have either $A$- or $\overline{A}$-properties, depending on which feature was responsible for creating $P$ at given syntactic derivation.

- Fong (2019) shows that this is the case in Mongolian (Mongolic).
- In that case, $P = \text{Spec-CP}$.
- Covert Wh-movement to Spec-CP: canonical properties of $\overline{A}$-movement, as expected.
- Hyperraising through Spec-CP: properties of $A$-movement, unlike what would be expected in a positional view.

Spec-CP as an $A$-position is particularly unexpected under the positional view, where this position is inherently an $\overline{A}$-position.

Preview of the typology of possible properties of Spec-CP under a featural view of syntactic positions:

- Spec-CP as an $A$-position: canonical instances of $\overline{A}$-movement, like Wh-movement.
- Spec-CP as a hybrid, $A/\overline{A}$-position: first position in Dinka, a V2 language.
- Spec-CP as an $A$-position: hyperraising in Mongolian.

3 $\varphi$-features vs. $\overline{A}$-features (Wh, Foc, Top, etc)

A. Overview

- Recall: in the featural approach to the $A$ vs $\overline{A}$ distinction, the nature of the feature that triggers movement, when coupled with independent principles, plays a defining role in the nature of the position created by the movement.
- Proposal: the features that trigger $A$-movement ($\varphi$-features) are inherent and, therefore obligatorily present, properties of a nominal, while the features that trigger $\overline{A}$-movement (Wh, Foc, Top, etc) are optional.
- Properties explained:

<table>
<thead>
<tr>
<th></th>
<th>$A$-movement</th>
<th>$\overline{A}$-movement</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Can trigger T-agreement</td>
<td>✓</td>
<td>*</td>
</tr>
<tr>
<td>b. Can bypass intervening DPs</td>
<td>*</td>
<td>✓</td>
</tr>
<tr>
<td>c. Can pied-pipe</td>
<td>*</td>
<td>✓</td>
</tr>
</tbody>
</table>

- NB: van Urk (2015) explains the other properties in (10) as well, but I am limiting the feature-based one because of time constraints!

B. Inherent vs. optional features

- Common assumption: properties like $\varphi$-features are inherent properties of nominals.
  - This is quite clearly the case, for instance, of morphological gender in Romance languages.
- Another common assumption: features like Top, Wh, Foc, etc, are optional.
  - Topicalizing a nominal, for example, is optional (i.e. a derivation converges with or without topicalization), though there are, of course, discourse effects.

C. Modeling the optionality of $\overline{A}$-features

- The optional $\overline{A}$-features is modelled as an additional layer (call it QP), which can have different attachment sites (Cable, 2010).
- This is how Cable analyzes pied-piping crosslinguistically.
- The analysis is also neatly illustrated by “optional” pied-piping in English.

<table>
<thead>
<tr>
<th>a. $[\text{QP} \quad \text{[DP Which parent]}]$ is Taylor meeting $[\text{PP with } ?]$?</th>
<th>b. $[\text{QP} \quad \text{[PP With [DP which parent]}]]$ is Taylor meeting $?$?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under Cable’s analysis, there is no optionality in pied-piping per se.</td>
<td>Rather, there is QP, which has different attachment sites. The size of the moved phrase depends on where QP is merged.</td>
</tr>
</tbody>
</table>

- The QP hosts the $\overline{A}$-features that render a phrase an apt goal for a matching probe.
- Language variation: language-specific rules about where QP can attached.
  - In English, for instance, where preposition stranding is possible (15a), QP may attach to either a DP or a PP (the former yields preposition stranding).
  - In Brazilian Portuguese, on the other hand, preposition stranding is not possible. In terms of Cable’s (2010) system, this means that QP can only attach to PP.

D. Common assumption about what restricts movement: relativized minimality.

\begin{center}
\textbf{Relativized Minimality}
\end{center}

(16) $Y$ is in a Minimal Configuration (MC) with $X$ iff there is no $Z$ such that:

\begin{itemize}
  \item i. $Z$ is of the same structural type as $X$, and
  \item ii. $Z$ intervenes between $X$ and $Y$
\end{itemize}

\[\text{[Rizzi 2001, (4)]}\]

E. Summary: putting the pieces together

- Type of feature that triggers movement ($\varphi$-features for $A$-movement and $\overline{A}$-features like Wh, Top, etc for $\overline{A}$-movement).
- Nature of these features: $\varphi$-features are inherent properties of a nominal, while QP is optional (i.e. added on the nominal spine, as needed).
- Α-features are hosted by a QP with variable attachment sites.
- Relativized Minimality (essentially: a syntactic operation must target the closest appropriate element).

F. Explaining property (10a): triggering of T-agreement

(17) a. As crianças parecem ter visto a Maria.
   ‘The children seem to have seen Maria.’

   A-movement

   b. * Quais crianças estão claras que tiveram a Maria?
   ‘Which children is it clear that saw Maria?’

   A-movement

- A-movement can trigger T-agreement because this type of movement target phrases whose Φ-features are visible for syntactic operations.

G. Explaining property (10b): bypassing of intervening DPs

(18) a. * As crianças parecem ter visto a Maria.
   ‘It seems that Maria saw the children.’

   A-movement

   b. Quais crianças viu a Maria?
   ‘Which children did Mary see?’

   Α-movement

- A-movement is triggered by Φ-features, which any nominal is intrinsically endowed with.
- Relativized Minimality (16) dictates that the closest appropriate element be targeted by a given operation.
- The conspiracy between these principles results in the impossibility of A-movement to target a lower DP (as crianças in (18a)) when there is another DP that c-commands it (a Maria) and which is in turn c-commanded by the Φ-probe.\(^1\)

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\(^1\)In (19), I represent the verb phrase as a simple VP, omitting the vP for ease of representation.
3.1 Interim summary and looking forward

A. Featural view of syntactic positions in van Urk (2015)

- Main proposal: the A vs. \( \bar{A} \)-distinction derived by independent properties of the mechanisms and principles that govern movement.
  - Compare the opposite view: the A vs. \( \bar{A} \)-distinction is a primitive of the grammar.
  - Specifically, in van Urk’s featural theory, A-movement is triggered by \( \Phi \)-features, while \( \bar{A} \)-movement is triggered by \( \bar{A} \)-features like Wh, Top, Foc, etc.
    - Compare positional theory: a given syntactic position is inherently A or \( \bar{A} \).
    - Critically, \( \Phi \)-features are inherent properties of a nominal, while \( \bar{A} \)-features are optional. The latter as modeled in terms of Cable’s (2010) QP.
    - Coupled with independent principles of the grammar (notably, Relativized Minimality), we can explain a few empirical properties of the A vs. \( \bar{A} \) distinction.

B. Empirical support

- Phrasal movement in Dinka (Nilotic) displays hybrid properties, i.e. both A- and \( \bar{A} \)-properties.
- How to account for this: phrasal movement in Dinka is triggered by composite features.
- Background in the next section: composite probes (Coon & Bale, 2014).

4 Composite probes (Coon & Bale, 2014)

A. Brief overview

- In Mi’gmaq (Algonquian), person and number function together, otherwise, we cannot explain the direct/inverse pattern displayed by the language.
- Technical implementation: composite (fused) probes.

B. Background: Algonquian inverse systems

- Simple-minded description: Algonquian languages display agreement morphology that is sensitive not to the syntactic position of the argument agreed with (e.g. subject vs. object agreement), but to a hierarchy of features.

(22) Inverse system in Plains Cree (Coon & Bale, 2014, (2))

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>ni-wāpam-[a]w</td>
<td>ni-wāpam-[ikw]w</td>
</tr>
<tr>
<td>1-see-DIRECT-3</td>
<td>1-see-INVERSE-3</td>
</tr>
<tr>
<td>‘I see her.’</td>
<td>‘She sees me.’</td>
</tr>
</tbody>
</table>

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2 Alternatively, we could say that a PP layer shields away a DP’s \( \Phi \)-features, rendering them invisible to an external probe.
The agreement features in (22a) and (22b) are the same, even though the thematic role of the arguments are reversed, as indicated in the translation.

These agreement slots are sensitive not to syntactic position or thematic role, but rather to the features of the arguments, according to a simplified hierarchy like the following:

(23) $2 \gg 1 \gg 3$

The first agreement slot in (22a) and (22b) targets the highest argument in the hierarchy (1st person, in this case) irrespective of the syntactic position.

Furthermore, in Plains Cree there is a morpheme that indicates whether there is an overlap between syntactic hierarchy and a person hierarchy like (23).

- Direct marking (22a): the argument that is highest in the hierarchy (23) also occupies the highest syntactic position (i.e. the subject).
- Inverse marking (22b): the argument that is the highest in the hierarchy (23) does not occupy the highest syntactic position.

C. Background: the verb complex template in Mi'gmaq

(24) Template (to be enriched)

Stem – Slot1 – (Neg) – Slot2 – 3pl

OBJ SUBJ

[Coon & Bale 2014, (9), adapted]

(25) Verb complex created by Mirror Principle-obeying head movement

D. Agreement pattern: non-plural nor participant object (direct pattern)

(26) Template: see–Slot1_{obj}–Neg–Slot2_{subj} (3pl)

a. Mu nem-i'll-w-g.
   NEG see-1OBJ-NEG-3
   ‘She doesn’t see me.’

b. Mu nem-u’in-u-eg.
   NEG see-2OBJ-NEG-1EXCL
   ‘We don’t see you.’

c. Mu nem-a-w-gw.
   NEG see-3OBJ-NEG-1INCL
   ‘We don’t see her.’

d. Mu nem-a-w-gw-ig.
   NEG see-3OBJ-NEG-1INCL-3PL
   ‘We don’t see them.’

[Coon & Bale 2014, (14, 15c)]

In (26), Slot1 displays agreement with the object, while Slot2 displays agreement with the subject.

- In all sentences, the object is either a singular participant (i.e. me and you) or a non-participant (i.e. she and them).
- In (26d), there is an additional suffix indicating that the non-participant object is also plural (-ig).

E. Agreement pattern: plural participant object (inverse pattern)

(27) Plural participant (i.e. us, y’all) object; non-participant subject

Template: see–Slot1_{subj}–Neg–Slot2_{obj}

a. Mu nem-u-gsi-w-gw.
   NEG see-3>part.pl-NEG-1INCL
   ‘He doesn’t see us incl.’

b. Mu nem-u-gsi-w-eg.
   NEG see-3>part.pl-NEG-1EXCL
   ‘He doesn’t see us excl.’

c. Mu nem-u-gsi-w-og.
   NEG see-3>part.pl-NEG-2PL
   ‘He doesn’t see y’all.’

[Coon & Bale 2014, (21); adapted]

- -Ugsi: 3rd person subject, but only when object is a plural participant.
- Also indicates that the agreement follows an inverse pattern in Mi’gmaq: Slot1 no longer cross-references the object, but the subject; Slot2 no longer cross-references the subject, but the object (critically, a plural participant one).
- Importantly, -ugsi only appears when the subject is 3rd person.\(^3\)

\(^3\)For details on the morphosyntax of the subject, see Coon & Bale (2014). I also refer the reader to the original paper for information regarding sentences where both the subject and the object are participants – Slot1 is still the object.
(28) **Plural participant (i.e. us, y'all) object; participant subject**

a. Mu nem-i’li-w-eg.
   NEG see-1OBJ-NEG-1EXCL
   ‘You don’t see us’

b. Mu nem-u’ln-u-oq.
   NEG see-2OBJ-NEG-2PL
   ‘I don’t see you’

[Coon & Bale 2014, (15a, b)]

- Compare specially with (26a), where the subject is also 3rd person, but the participant object is singular:

(26a) Mu nem-i’li-w-g.
   NEG see-1OBJ-NEG-3
   ‘She doesn’t see me.’

F. Summary and desiderata

- General template of the verb complex in Mi’gmaq:

  
  $\text{see} -$ Slot$_{1\text{OBJ}}$-Neg-$\text{Slot}_{2\text{SUBJ}}$

- Unless: the subject is 3rd person and the object, a plural participant (in that combination only).

  
  $\text{see} -$ Slot$_{1\text{SUBJ}}$-Neg-$\text{Slot}_{2\text{OBJ}}$

- Question: how can we account for both agreement patterns?

- This analysis must also account for the fact that -agsi only appears when the subject is 3rd person and the object, a plural participant.

G. Algonquian inverse agreement in general

- Recall: in inverse systems, the same agreement slot may target either a subject or an object; what matters is a hierarchy of features that are targeted for agreement.

- Proposal: the highest agreement is triggered by IP, but there is an intermediate projection (call it ‘FP’) between IP and vP, which triggers the movement of the highest argument in the hierarchy.

- Example: inverse system in Plains Cree (hierarchy: 1 $\gg$ 3)

(29) a. $\text{ni-w\text{-w}}\text{pam-}_{3}\text{jw}$
    1-see-INVERSE-3
    ‘She sees me.’

b. $\text{ni-w\text{-w}}\text{pam-}_{1}\text{jw}$
    1-see-DIRECT-3
    ‘I see her.’

- If there is no appropriate target for F’s [PARTICIPANT] probing (e.g. all arguments are 3rd person), Agree can fail (in the sense of Preminger 2014) and I $\varphi$-Agrees with the subject (the closest goal).
But what about the inverse in Mi'gmaq, where the inverse is sensitive to two features of the object at the same time (i.e. [PARTICIPANT] and [PLURAL])?

H. Analysis attempt #1: FP = separate [PERSON] and [NUMBER] probes.

- Problem: if the object is a participant, but a singular one, -ugsi does not occur.

(26a) Mu nem-ì'ìw-g.
    NEG see-1OBJ-NEG-3
    ‘She doesn’t see me.’

- In that case, the participant object could move up to [Spec-PersonP], Agree with [Number] would fail (Preminger, 2014), but the object would still be high enough to Agree with Infl, the locus of Slot2, contrary to fact.
- What we need instead: for the [PERSON] and [NUMBER] probes to work together.

I. Analysis attempt #2: FP = composite [PERSON] + [NUMBER] probe.

- Technical implementation: fusion of for the [PERSON] and [NUMBER] probes.
The fused probes will search for an argument that is both plural and participant. This prevents the overgeneration of (26a), where the object has only one of these features.

This provides empirical motivation for the proposal that features can probe together.

5 Composite probes in Dinka

A. Recap of theoretical tools

- Featural definition of syntactic positions: a given syntactic position is A or A not inherently, but depending on the features that created them.
- Composite probe (Coon & Bale, 2014): probe that searches for more than one feature at the same time.

⇒ Prediction derived from the combination of these two elements: a given syntactic position can have both A- and A-properties if it is created by a composite A/A-probe. This prediction is borne out in movement to Spec-CP in Dinka.

B. Dinka V2

- V2: descriptively, some phrase XP occupies the first position and the highest verb occupies the second position.
  - Highest verb: either the lexical verb or an auxiliary, if there is one.
  - Common analysis (at least in Germanic languages): XP moves to Spec-CP, while the highest verb moves to C.
    - How we know that: the V2 effect disappears in embedded clauses, where C is occupied by the complementizer. As a consequent of that, the highest verb cannot move there.
- V2 in Dinka

(34) V2 in main clause

a. Àyén à-càm cuî̤in nè pǎal.
   Ayen 3s-eat.sv food p knife
   ‘Ayen is eating food with a knife.’

b. Cuî̤in à-cɛ́ɛm Àyén nè pâal.
   food 3s-eat.oV Ayen GEN p knife
   ‘Food, Ayen is eating with a knife.’

c. Pǎal à-cɛ́ɛmè̤ Àyén cuî̤in.
   knife 3s-eat.oblv Ayen GEN food
   ‘With a knife, Ayen is eating food.’

[van Urk 2015, p. 61]

- The verb in second position can also be an auxiliary. See data in (van Urk, 2015, (3), p. 61)

(35) No V2 in embedded clause

Bòl à-gà̤i [CP nàa càm Àyén cuî̤in ].
   Bol 3s-wonder-sv [ whether eat.sV Ayen GEN food ]
   ‘Bol is wondering whether Ayen is eating food.’

[van Urk 2015, p. 63]

- Conclusion: V2 in Dinka is derived by movement of the first XP to Spec-CP and movement of the highest verb to C.

C. Spec-CP in Dinka has composite A- and A-properties.

- The phrase that occupies the first position triggers φ-agreement in the verb in V2 position. The phrase moved to Spec-CP can be an object that moves across the higher subject.

(36) a. Yî̤in Ø-cí̤ môc tî̤iŋ.
    you 2-prf.oV man.gen see.nv
    ‘You, the man has seen.’
b. Mìir á-càa tî̤iŋ.
giraffe 3SG-PRF.1SG see.NF
‘A giraffe, I have seen.’

c. Mìiɛ̀ɛr áa-càa ké tî̤iŋ.
giraffes 3PL-PRF.1SG 3PL see.NF
‘Giraffes, I have seen.’ [van Urk 2015, p. 103]

While the triggering of agreement is a property characteristic of A-movement, the skipping over of higher potential goals is a property of ˓A movement.

Likewise, in (37), mòc é̤bɛ́́n ‘every man’ moves from the embedded clause into the left periphery of the matrix clause.

(37) Mòc é̤bɛ́́n  men 
 3s-hab.ov 
 3s-woman
lûeeł [cp è _thet ].
man every 3S-HAB.OV woman-sg.3SG say.NF [ c _cook.SV ]
‘Every man, his wife says is cooking.’ [van Urk 2015, p. 110]

Cross clausal movement is usually taken to be a property of ˓A movement. However, the moved quantifier phrase can bind a pronoun that it moves across. This an obviation of a weak crossover effect, a signature property of A-movement.

Summary:

(i) Positional view: Spec-CP is an ˓A-position. It is not expected to have A-behavior.
(ii) Featural view: because the behavior of a syntactic position depends on the features that create them, if there can be a hybrid, composite probe (Coon & Bale, 2014), we expect exactly this type of behavior, given the availability of the correct probe in a language like Dinka.

References


D. How to account for these mixed properties of movement to Spec-CP in Dinka?

• This mixed behavior can be accounted for in a unified way by the proposal that the movement of mòc é̤bɛ́́n is triggered by a composite A/ ˓A-probe.

• The consequence is that Spec-CP in a language like Dinka is a position that displays hybrid A/ ˓A behavior.

E. Comparison with a positional view.

• Recall: two views of how the properties of a given syntactic position come about:
  (i) Positional view: syntactic positions are inherently A or ˓A.
  (ii) Featural view: the A- or ˓A-behavior of a given syntactic position is not known a priori; that depends on the features that created it.

• Dinka: Spec-CP has both A- and ˓A-properties.

• How does each view fear with respect to these data?