Resumption and Case: a new take on Modern Standard Arabic

Berthold Crysmann
crysmann@linguist.univ-paris-diderot.fr

CNRS, Laboratoire de linguistique formelle (UMR 7110), Paris-Diderot

HPSG 2017, Lexington
HPSG theories of resumption

- Areas of convergence (Taghvaipour, 2005; Alotaibi & Borsley, 2013; Crysmann, 2012)
  - Resumption and gap-type dependencies modelled via slash
    - motivated by ATB extraction
    - no RESUMP feature, in contrast to (Vaillette, 2001)
    - distinction between index and local percolation
  - Resumptive function decided on governing head (Alotaibi & Borsley, 2013; Crysmann, 2016)

- Areas of dissent
  - Island-sensitivity
    - None; deemed extra-grammatical (Borsley, 2010; Alotaibi & Borsley, 2013)
    - weight of percolated material (Crysmann, 2012)
  - Top-down control over distribution of gaps/resumptives
    - constructional information (Taghvaipour, 2005)
    - none (Borsley, 2010)
    - case (Alotaibi & Borsley, 2013)
    - weight (Crysmann, 2012)
Outline

- Overall goal:
  - Provide a unified approach to resumption across different languages
  - account for the similarity of the phenomenon
  - leave space for variation

- Structure of the talk
  - Resumption and Gaps in MSA (Alotaibi & Borsley, 2013)
  - Baseline analysis (Alotaibi & Borsley, 2013)
  - Problems with case
  - A weight-based reanalysis
  - ATB constraint
Alotaibi & Borsley (2013):
Resumption and Gaps in MSA
Obliques (Alotaibi & Borsley, 2013)

- MSA permits extraction by both gap and resumptive strategies
- Some local governing heads require presence of a resumptive complement of preposition
- possessed nouns

Case mismatch:
- possessed nouns and preposition ةيلاي locally assign genitive
- (wh-)filler indiscriminate bears nominative case

(1)  

a. ئاّي-ةُ-ةَ ظامات-ةَ ظاحب-ةُ ءحمد-ةُ  
   which -NOM/-GEN university-GEN went.3SM Ahmad-NOM
   ةيلاي -ةُ / *ةَ ؟
   to -ة  
   ‘Which university did Ahmad go to?’ (A&B 2013, p. 7)

b. ئاّي-ةُ-ةَ مالمات-ةَ غاراُ ءحمد-ةُ  
   which -NOM/-GEN author-GEN read.3SM Ahmad-NOM
   كتب-ةُ -ةُ / *ةَ ؟
   book-ACC -his
   ‘Which author’s book has Ahmad read?’ (A&B 2013, p. 7)
Direct objects (Alotaibi & Borsley, 2013)

- Direct objects may employ either strategy in principle
- Choice of strategy correlates with difference in case
  - Gap-type extraction displays a case-matching effect (accusative)
  - Resumptive strategy induces nominative filler for objective function

(2) ?ayy-a T-tullaab-i qaabala l-qaa?id-u ø ?
which-ACC the-students-GEN met.3SM the-leader-NOM
‘Which of the students has the leader met?’ (A&B 2013, p. 8)

(3) ?ayy-u T-tullaab-i qaabala-hum l-qaa?id-u ?
which-NOM the-students-GEN met.3SM-them the-leader-NOM
‘Which of the students has the leader met?’ (A&B 2013, p. 8)
Direct objects (Alotaibi & Borsley, 2013)

- Distribution of gaps/resumptives controlled by top of dependency
  - wh-filler: both (see above)
  - definite relative (ex. (4); complementiser llaðii): both
  - indefinite relatives (ex. (5); null complementiser): resumptive

(4) qaabaltu r-rajul-a [llaðii ʔarifu Ø / -hu ]
met.1 SM the-man- ACC that knew.1SM him
‘I met the man that I knew.’ (A&B 2013, p. 9)

(5) qaabaltu rajul-an [ʔaʕrifu -hu / *Ø ]?
met.1SM man-ACC knew.1SM -him
‘I met a man that I knew’ (A&B 2013, p. 9)
Direct objects: Long extraction (Alotaibi & Borsley, 2013)

- MSA permits long extraction out of strong islands (e.g. relative clauses), see ex. (18)
- Long extraction requires resumptive at the extraction site, cf. ex. (7)

(6) ʔayy-u bint-in raʔaita l-ʔasad-a ʔalaʔii
which-NOM girl-GEN saw.2SM the-lion-ACC that
ʔakala-ha
ate.3SM-him
‘Which girl did you see the lion that ate?’ (A&B 2013, p. 12)

(7) ʔayy-a bint-in raʔaita l-ʔasad-a ʔalaʔii ?akala Ø
which-ACC girl-GEN saw.2SM the-lion-ACC that ate.3SM
‘Which girl did you see the lion that ate?’ (A&B 2013, p. 12)
Subjects (Alotaibi & Borsley, 2013)

- subject extraction does not give rise to overt resumptives

(8) ʔayy-u Tullaab-in ʕaraf-uul-ʔijaabat-a?
which-NOM students-GEN knew.3PM the-answer-ACC
‘Which students knew the answer?’ (A&B 2013, p. 10)

- Arabic is a null-subject language: extraction site may be
  - gap?
  - zero pronominal (resumptive)?

- Pro-drop triggers full agreement (person/gender + number)

(9) a. laqad qaabala Aḥmad-a
indeed met.3SM Ahmad-ACC
‘He met Ahmad.’ (A&B 2013, p. 10)

b. laqad qaabaluu Aḥmad-a
indeed met.3PM Ahmad-ACC
‘They met Ahmad.’ (A&B 2013, p. 10)
Subjects (Alotaibi & Borsley, 2013)

- Subject extraction does not give rise to overt resumptives

(8) ʔayy-u Tullaab-in ʕaraf-uul-ʔijaabat-a?
which-NOM students-GEN knew.3PM the-answer-ACC
‘Which students knew the answer?’ (A&B 2013, p. 10)

- Arabic is a null-subject language: extraction site may be

  - gap?
  - zero pronominal (resumptive)?

- In situ non-null subjects only show person/number agreement

(9) qaabalal / *qaabaluu T-tullaab-u Ăhmad-a
met.3SM met.3PM the-students-NOM Ahmad-ACC
‘The students met Ahmad’ (A&B 2013, p. 9)
Subjects (Alotaibi & Borsley, 2013)

- subject extraction does not give rise to overt resumptives

(8) ?ayy-u Tullaab-in %araʃ-uul-?iʃaabat-a?
which-NOM students-GEN knew.3PM the-answer-ACC
‘Which students knew the answer?’ (A&B 2013, p. 10)

- Arabic is a null-subject language: extraction site may be gap?
- zero pronominal (resumptive)?

- Pre-verbal subjects
  - are restricted to definites
  - display full agreement (person/gender + number)
  ⇒ pre-verbal subjects are topics (cf. Aoun et al. 2010), i.e. extracted

(9) T-tullaab-u qaabaluu / *qaabala Ahmada
the-students-NOM met.3PM met.3SM Ahmad-ACC
‘The students met Ahmad’ (A&B 2013, p. 9)
Subjects (Alotaibi & Borsley, 2013)

- subject extraction does not give rise to overt resumptives

(8) ʔayy-u Tullaab-in ʕaraf-uu l-ʔijaabat-a?
which-NOM students-GEN knew.3PM the-answer-ACC
‘Which students knew the answer?’ (A&B 2013, p. 10)

- Arabic is a null-subject language: extraction site may be
  - gap?
  - zero pronominal (resumptive)?
- Agreement with extraction patterns like
  - zero subjects
  - topics
  ⇒ subject extraction site features a zero resumptive

(9) ʔayy-u Tullaab-in ʕarafuu / * ʕarafa
which-NOM students-GEN knew.3PM knew.3SM
l-ʔijaabat-a?
the-answer-ACC
‘Which students knew the answer?’ (A&B 2013, p. 10)
Baseline analysis:
Alotaibi & Borsley (2013)
Resumptives involve INDEX sharing, yet do not involve LOCAL sharing (Borsley, 2010)

Disjunctive SLASH introduction:

\[
\begin{align*}
\text{word} & \quad \text{SS|NLOC|SL} \quad \{1\left[\text{INDEX} \ 2\right]\} \rightarrow \\
\text{ARG-ST} \quad \left[ \ldots \left[ \text{NLOC|SL} \quad 1 \right] \lor \right. \\
& \left. \left[ \text{LOC|CONT} \quad \text{pro} \quad \text{IND} \quad 2 \right] \right) \ldots \right)
\end{align*}
\]
If, with resumptives, SLASH values are not reentrant with LOCAL, hence not with CAT, a matching effect is not enforced.

Alotaibi & Borsley (2013) control the correlation between filler case and resumption via a constraint at the bottom, exceptionally assigning nominative to SLASH corresponding to pronominal arguments.

- zero subjects
- pronominal affixes (in the sense of Miller & Sag 1997)

\[
(11) \quad \text{word} \quad \text{SLASH} \quad \left\{ [\text{INDEX } 2] \right\} \quad \text{ARG-ST} \quad \left\langle ... [\text{pro} \quad \text{INDEX } 2] \right\rangle \quad \rightarrow \quad \text{SLASH} \quad \left\{ [\text{CASE } \text{nom}] \right\}
\]
Baseline (Alotaibi & Borsley, 2013)

- Case constraint is redeployed to constrain the distribution of gaps:
  - Lexical entry of indefinite zero complementiser selects for nominative NP (hence: resumptive)
  - Lexical entry of definite complementiser llaði underspecifies for case (hence: gap or resumptive)

\[(12)\]

\[
\begin{align*}
\text{PH} & \langle \rangle \\
\text{HD} & \left[ \begin{array}{c}
\text{comp} \\
\text{MOD} & \text{NP} \\
\text{DEF} & - \\
\text{IND} & i
\end{array} \right] \\
\text{COMPS} & \langle S \left[ \text{SLASH} \left\{ \text{NP} \left[ \text{CASE} \begin{array}{c}
\text{IND} \\
\text{nom}
\end{array} \right] \right\} \right] \rangle
\end{align*}
\]
Case constraint is redeployed to constrain the distribution of gaps:

- Lexical entry of indefinite zero complementiser selects for nominative NP (hence: resumptive)
- Lexical entry of definite complementiser *llaði* underspecifies for case (hence: gap or resumptive)

\[
\begin{align*}
(12) & \quad \left[ \begin{array}{c}
PH & \langle llaði \rangle \\
HD & \left[ \begin{array}{c}
comp \\
MOD & \text{NP} \left[ \begin{array}{c}
\text{DEF} \\
\text{IND} & i \\
\text{COMPS} & \left[ \begin{array}{c}
\text{S} \left[ \text{SLASH} \left\{ \text{NP} \left[ \text{IND} & i \right] \right\} \right] \right]
\end{array} \right] \right]
\end{array} \right]
\end{align*}
\]
Problems for the case-based account
MSA observes the ATB restriction
Asymmetric extraction from 1 conjunct illicit
Simultaneous extraction from both conjuncts fine

(13) a. * man [tuḥibu Ø wa tuša.darkiʕu Aḥmad-a fī nafs-i l-waqt-iʕ]
same-GEN the-time-GEN
‘Who do you like and support Ahmad at the same time?’ (A&B 2013, p. 13)

b. man [tuḥibu Ø wa tuša.darkiʕu Ø fī nafs-i l-waqt-iʕ]
the-time-GEN
‘Who do you like and support at the same time?’ (A&B 2013, p. 13)
ATB

- MSA observes the ATB restriction
- Asymmetric extraction from 1 conjunct illicit
- Simultaneous extraction from both conjuncts fine
- ATB treats resumptives on a par with gaps

(13)  a.  * man [tuḥibu Ø wa tušadግifyu  Aḥmad-a fii who like.2SM and support.2SM Ahmad-ACC in nafs-i  l-waqt-iʕ] same-GEN the-time-GEN ‘Who do you like and support Ahmad at the same time?’ (A&B 2013, p. 13)

b.  man [tuḥibu  Ø wa tušadግifyu  -hu fii nafs-i who like.2SM and support.2SM -him in same-GEN l-waqt-iʕ] the-time-GEN ‘Who do you like and support at the same time?’ (A&B 2013, p. 14)’
ATB and case: a paradox

- Mixing of gap and resumptive strategy may give rise to case conflicts on SLASH values (problem noted by A & B 2013)
- Mixing possible with unambiguously case-marked fillers
- Case matching with gap fully acceptable
- Nominative marking marginally acceptable

(14)  a. ʔayy -a Tullaab-in [qaabalta 0 wa which -ACC students-GEN met.2SM and talked.2SM tahaddaʔta ?ilai-hum]? to-them
  ‘Which students have you met and talked to?’

b. ʔayy -u Tullaab-in [qaabalta 0 wa which -NOM students-GEN met.2SM and talked.2SM tahaddaʔta ?ilai-hum]? to-them
  ‘Which students have you met and talked to?’ (A&B 2013, p. 21)
?anna clauses

- Complementiser ?anna takes an accusative filler argument plus the clause from which it is extracted
- Extraction site must be a resumptive
- Case constraint for resumptive fails to correspond to both overt case at the top and expected objective case at the bottom

(15) ħasiba Ahmad-u [ʔanna l-ʔawlaad-a ʔahabuu].
    thought.3.S.M Ahmad-NOM that the-boys-ACC left.3.P.M
    ‘Ahmad thought the boys had left’ (A & B 2013, p. 19)

(16) ʕalimtu [ʔanna l-qiSat-a garaʔa-ha Ahmad-u]
    knew.1.S.M that the-story-ACC read.3.S.M-it Ahmad-NOM
    ‘I knew that (as for) the story, Ahmad read it.’ (A & B 2013, p. 23)

(17) * ʕalimtu [ʔanna l-qiSat-a garaʔa Ahmad-u Ø]
    knew.1.S.M that the-story-ACC read.3.S.M Ahmad-NOM
Long extraction

- Long extraction possible, e.g. out of *llaði* relatives

(18) ?ayy-u bint-in ra?aita l-ʔasad-a llaðii
which-NOM girl-GEN saw.2SM the-lion-ACC that
ʔakala-ha
ate.3SM-him
‘Which girl did you see the lion that ate?’ (A&B 2013, p. 12)

- While the complementiser *llaði* permits both gaps and resumptives at the bottom of the dependency it binds, long extracted filler must bind a resumptive

- Facts may be captured by having *llaði* restrict the case of the remaining SLASH member

- Conceptual problem
  - non-local case assignment to an NP it neither selects, nor locally constructs with
Synopsis

- Case-based theory of resumption
  - does not generalise to languages without case
  - counter-intuitive
    - \( ?anna \) clauses: no correspondence of case in \textit{SLASH} to either top or bottom of the dependency
    - long extraction: inside-out case assignment to an unrelated dependent
  - fails to capture why gaps and resumptives observe different locality conditions

- Case matching only ever needed for gaps
- Case assignment with resumptives only detectable at the top of the dependency
  - nominative for \textit{wh}-fillers
  - accusative for complement of \( ?anna \)

- Resumptives with long extraction: strong island
A weight-based account
Weight-based extraction

- Crysmann (2012) proposes to control the distribution of gaps and resumptives in Hausa by reference to the amount of information on slash.
- Approach previously applied to complement vs. adjunct extraposition in German (Crysmann, 2013).
- Local values are distinguished according to the amount of information they may carry.

(19) Types hierarchy of local values

\[
\begin{align*}
\text{local} \\
\text{CONT} \quad \text{INDEX ind} \\
\text{full-local} \\
\text{CAT cat} \\
\text{weak-local} \\
\text{CONT RELS } \\
\end{align*}
\]
Weight-based extraction

- Constraints on slashed synsem can be
  - underspecified (Hausa): resumptives may replace gaps

(20) Partial type hierarchy for synsem values

```
synsem
[LOC full-local]
[NLOC nloc]
```

```
slashed
[LOC [CONT|IND i]]
[NLOC [SL {CONT|IND i}]]
```

```
gap
[LOC i]
[NLOC SL {i}]
```

```
resump
```
Weight-based extraction

- Constraints on slashed synsem can be
  - disjoint (MSA): gaps and resumptives have different distributions

(20) Partial type hierarchy for synsem values

\[
\begin{align*}
\text{synsem} & \quad \text{full-local} \\
\text{LOC} & \quad \text{full-local} \\
\text{NLOC} & \quad \text{nloc} \\
\text{slashed} & \\
\text{LOC} & \quad \text{CONT|IND} \\
\text{NLOC} & \quad \text{SL} \{\text{CONT|IND} \} \\
\text{gap} & \\
\text{LOC} & \quad \text{i} \\
\text{NLOC} & \quad \text{SL} \{\text{i}\} \\
\text{resump} & \\
\text{NLOC} & \quad \text{SL} \{\text{weak-local}\}
\end{align*}
\]
A weight-based account of MSA I

\[ \text{filler-head-rule} \]
\[
\begin{align*}
\text{SS} & : [\text{NLOC}|\text{SL} \hspace{1em} \text{set(weak-local)}] \\
\text{F-DTR} & : [\text{SS}|\text{LOC} \hspace{1em} \downarrow] \\
\text{HD-DTR} & : [\text{SS}|\text{NLOC} \hspace{1em} [\text{T-B}|\text{SL} \hspace{1em} \{\downarrow\}]]
\end{align*}
\]

- Standard head-filler rule implements matching effect
- Reentrancy with LOCAL coerces SLASH to \textit{full-local}
- Compatible with underspecified resumptives (Hausa)
- Incompatible with strict resumptives (MSA)
A weight-based account of MSA II

(22)

resump-filler-head-rule

\[
\begin{align*}
\text{F-DTR} & \quad \text{SS|L} & \quad \text{CAT} & \quad \text{HD} & \quad \text{noun} \\
\text{CONT} & \quad \text{IND} & \quad \text{SPR} & \quad \text{COMPS} & \quad \langle \rangle \\
\text{HD-DTR} & \quad \text{SS|NLOC} & \quad \text{T-B|SL} & \quad \text{weak-local} & \quad \{\} \\
\text{CONT|IND} & \quad \langle \rangle
\end{align*}
\]

- Nominative fillers in strict resumptive dependencies require a parochial head-filler constraint
- Prediction: nominative fillers should be possible in long extraction when case matching fillers are ruled out
(23) Null indefinite relative complementiser

$$\begin{align*}
\text{PH} & \quad \langle \rangle \\
\text{HEAD} & \quad \left[ \begin{array}{c}
\text{comp} \\
\text{MOD} & \tilde{N} \\
\text{IND} & \underline{i} \text{ ref-index}
\end{array} \right] \\
\text{COMPS} & \quad \left[ \begin{array}{c}
\text{S} \\
\text{SLASH} \left\{ \left[ \begin{array}{c}
\text{weak-local} \\
\text{CONT} | \text{IND} \underline{i}
\end{array} \right] \right\} \right]
\end{align*}$$
A weight-based account of MSA IV

(24) Definite relative complementiser *llaði*

\[
\begin{align*}
\text{PH} & \quad \langle llaði \rangle \\
\text{comp} & \quad \begin{cases}
\text{CASE} & c \\
\text{MOD} & N \\
\text{IND} & \bar{i} \text{ ref-index}
\end{cases} \\
\text{HEAD} & \quad \begin{cases}
\text{CASE} & c \\
\text{DEF} & +
\end{cases} \\
\text{COMPS} & \quad \langle S \left[ \text{SLASH} \left\{ [s [\text{CONT} | \text{IND} \bar{i}] \right\} \cup \text{set(weak-local)} \right] \rangle \\
\text{TO-BIND} & \quad \text{SLASH } s
\end{align*}
\]

- unselective for the type of dependency it binds
- transparent for weak (= resumptive) dependencies
A weight-based account of MSA V

(25) ?anna

\[
\begin{align*}
\text{ARG-ST} & \left< \NP \left[ \text{CASE} \quad \text{acc} \right], \ S \left[ \text{SLASH} \left\{ S \right\} \cup \text{set} \right] \right> \\
\text{TO-BIND} & \left[ \text{SLASH} \left\{ \left[ \text{weak-local} \right] \right\} \right]
\end{align*}
\]

- ?anna locally assigns accusative case
- requires the dependency to be of the weak type
- underspecifies the type for dependencies passing through
ATB constraint revisited

- Standard ATB constraint apparently too strong for MSA
- Coordination permits sloppy matching not licensed otherwise
- Proposed solution:

\[(26) \quad \text{Minimally distribute index sharing over conjunct daughters already controls for matched arity}\]

coord-phr →

\[
\begin{align*}
\text{SLASH} & \left\{ \left[ \text{INDEX} \quad \bar{i} \right] \right\} \\
\text{DTRS} & \left[ \text{SLASH} \left\{ \left[ \text{INDEX} \quad \bar{i} \right] \right\} \right], \\
\text{SLASH} & \left\{ \left[ \text{INDEX} \quad \bar{i} \right] \right\}
\end{align*}
\]
ATB constraint revisited

- Standard ATB constraint apparently too strong for MSA
- Coordination permits sloppy matching not licensed otherwise
- Proposed solution:

(26) Impose mother’s local type on at least one daughter

\[
\text{coord-phr} \rightarrow \\
\left[
\text{SLASH } \left\{ \text{s} \right\} \\
\text{DTRS } \left\langle \text{SLASH } \left\{ \text{s} \right\} \right\rangle \filledcircle \text{ list}
\right]
\]

- Difference in markedness may be related to closest conjunct effect
Conclusion

- Evidence for case matching with resumptive dependencies quite weak
  - nominative case of objective resumptives stipulated
  - no matching in ?anna clauses
  - long-distance case assignment with long extraction

- Need to control for different locality constraints:
  - independently required to model variation among resumptive languages

- Weight-based approach
  - motivated by the quasi-anaphoric nature of resumptive dependencies
  - generalises more easily to languages without case

- ATB constraint can be relaxed to impose
  - minimal INDEX sharing on all conjuncts and
  - full sharing on a single conjunct
References I


