1. Background: General

- General questions of interest:
  - Why does reflexivity of predicates require special licensing, and how does licensing work?
  - Why do particular (licensing) expressions have to be bound (roughly: are "anaphors")?
  - Why do certain anaphors have to be locally bound?

  - both binding requirements and locality have to follow from properties available within (minimalist) syntax
  - the notion "bound" has to be properly semantically interpreted

1. Background: Body Part Reflexives (BPRs)

- Common across languages (Schladt 2000)
- Generative literature primarily deals with SELF-reflexives
- SELF-reflexives and BPRs are both 'complex reflexives' → Question: What are the commonalities (and differences) between SELF-reflexives and BPRs?
- Discussion based on information about Niger-Congo languages in Afranaph database:
  - morphosyntactic make-up of the reflexive
  - syntactic environments
  - different readings
  - What additional information is necessary?
2. The syntax of reflexive-marking

• Why Locality of SELF-anaphors?

Hypothesis:
- The resulting SELF-V is semantically interpreted as reflexive

(1) a. John hates himself

\[ \text{John (self)-hates himself} \]

2.1 SELF movement and exemption

• In positions where syntactic constraints such as the coordinate structure constraint, or the condition on extraction domains block movement, the SELF-anaphor cannot move and enforce reflexivity
• Hence the SELF-anaphor is exempt from a binding requirement (Reuland 2008, 2011):

(1) b. *Max was happy that the queen invited himself for a drink

\[ \text{(invite} \rightarrow \text{REFL} \rightarrow *) \]

(2) c. Max was happy that the queen invited [Mary and himself] for a drink

\[ \text{(no REFL)} \]

2.2 Morphosyntax of SELF-reflexive

• Leading hypothesis: The binding behavior of an expression is determined by its morphosyntactic make-up in relation to its syntactic environment.
• Specific assumption: the internal structure of English SELF reflexives is as in (2), where \textit{him} is in the specifier of a functional projection in the left periphery of the extended projection of the SELF-noun:

(2) \([_{FP} \text{him} \_{NP} \text{SELF} ]\)
2.3 Towards a semantics of reflexive marking

Jackendoff 1992: English *himself* allows a proxy-interpretation:

(3) a. (Upon a visit in a wax museum:) All of a sudden Ringo started undressing *himself* (= Ringo or his statue)

Safir 2004a,b: Not special to reflexives:

(3) b. Ringo is made of stone, whereas Yoko is made of wax
c. Suddenly, every pop icon started taking off the shirt he was wearing

Task: Develop a semantics capturing proxy-readings
Should capture both bound and exempt interpretation

2.4 What makes SELF a reflexivizer?

- SELF is inherently relational: A SELF is intrinsically some individual’s SELF
  → Logical syntax representation of *The girls admire themselves*:

(4) The girls (λx (admire (x, [x SELF])))

- SELF maps an x onto x’s SELF, which, in turn, is such that it can stand proxy for x.

- Generalizing (4): an inherently relational Noun is in principle suited as a reflexivizer if it can be interpreted as a functor f such that ||f(x)|| can stand proxy for ||x||:

(5) a. DP (λx (V (x, [x N])))
b. DP (λx (V (x, f(x))))

2.5 What does self do?

First approximation:

Keenan 1988: Pron-self is an operator that applies to a two-place predicate R (= a relation between atomic entities) and generates a one-place predicate over sets A of atomic entities.

Thus the interpretation of (6a) is formalized as in (6b).

(6) a. The girls admire themselves.
b. REFL := AR.AA.Vx∈A[R(x, x)]

Questions: i. How to accommodate proxy-readings?
ii. How to generalize over further types of anaphors (specifically BPRs)?
iii. What does each of the components contribute?

→ Intermezzo: The semantics of pronominals and SELF-anaphors

2.5.1 A semantics for pronouns

Starting point: Jacobson (1999)’s variable free semantics

- Jacobson: Pronominals denote the identity function (not individual variables)
  → pronominals are of type <ee> rather than type <e>.

Reuland & Winter 2009:

- Pronouns are interpreted as functions mapping individuals to their proxies, where the proxy-set is contextually determined.

Technically: Pronominals denote Skolem functions:

*Functions from entities to entities that take a relation as a parameter. This parameter determines the range for each possible entity argument:*

(7) A function f of type (ee) with a relational parameter R is a Skolem function if for every entity x: R(x, fR(x)) holds.

For pronominals this parameter is the proxy relation (PR), describing the possible proxies Ay.PR(x,y) of any entity x referred to.
2.5.2 Binding in a variable free system

Binding is expressed by the “Z-function” in Jacobson’s system:

The bound reading of John loves his mother is represented as:

(8) John Z-loves $F_{mother}$ = John loves $F_{mother}$ (John)

Binding of himself: Intuitive version:

(9) John loves himself = John Z-loves $F_{self}$ = John loves $F_{self}$ (John)

A “proxied” version of the Z function: the value of $F_{self}$ (John) may be one of John’s proxies, formally represented in (10):

(10) $Z_{PR} = \lambda R.\lambda f.\lambda x. R(x, f_{PR}(x))$

The interpretation of SELF-anaphors: Option 1

The unmarked option – self composes with the Skolem function denoted by the pronoun through the binding mechanism. Self covertly incorporates into the transitive predicate (as happens overtly in self-hater) and contributes a proxy relation to the non-reflexive pronoun through the proxied version of the Z function:

(11) $Z_{PR} = \lambda R.\lambda f.\lambda x. R(x, f_{PR}(x))$

The Z function provides the Skolem function $f$ with its parameter. The denotation of a VP like undress himself is obtained using the structure self-undress him:

(12) $Z_{self}(undress)(him) = Z_{self}(undress)(f) = \lambda x. undress (x, f_{self}(x)) = \lambda x. x$ undressed one of $x$’s self proxies (by definition of $f$ as a Skolem function)

The interpretation of SELF-anaphors: Option 2

A marked option – self composes with the Skolem function directly. This option is only available in exempt positions, when the incorporation with the predicate is syntactically blocked (e.g. by the Coordinate Structure Constraint)

Direct composition with the Skolem function leads to (13):

(13) himself = $f_{self}$ = a function mapping every entity $x$ to one of its proxies in self($x$)

→ exempt reading of himself allows it to be interpreted as either bound or free, similarly to the non-reflexive pronoun him.

Recall: The obligatoriness of the bound interpretation where possible is due to economy.

Conclusion: No intrinsic difference between self in bound and exempt positions.

3. Understanding BPRs

- Body part expressions are inherently relational (like self)
- BPRs usually consist of a (possessive) pronoun and the respective body part noun and are the most frequent reflexive markers (85%) in African language families (Schladt 2000).
- Data from the African Anaphora database shows that BPRs in our selection pattern with SELF reflexives in their distribution over different syntactic environments.
3.1 Binding and Interpretation of BPNs

Body part nouns are intrinsically relational, just like SELF
→ they have the same combinatory options as SELF
→ BPN-movement

• Specifically: They can combine with a predicate just like self.
(14) his body = \( f_{\text{body}} \) = a function mapping every entity \( x \) to
one of its proxies in \( \text{body}(x) \)

Technically: Binding of the BP follows the model of SELF:
(15) \( Z_{\text{BP}}(V)(\text{Pron}) = Z_{\text{BP}}(V)(f) = "x.V(x,f_{\text{BP}}(x))
\)

Expectations:
- Exempt interpretation if syntax blocks BPN-movement
- Proxy-interpretations just as with SELF-anaphors

3.2 Local binding

(16) a. Ijóni mrẹ oma-re-øyen
John see.PST body-AM-him
‘John saw himself’

b. Olú wè ara rè
Olu like body his
‘Olu likes himself’

c. Okon á-má idèm ọmò
Okon Agrs-love body his
‘Okon loves himself’

3.3 No long distance binding

(17) a. * Ijinni ta nẹ Imeri oma-re-øyen vwo egunọfẹ kẹ
Jean said that Mary body-AM-him has love for
‘Jean said that Mary loves him’

b. * Olú fura pé Mārìà féran ara rè
Olu suspect that Mary likes body his
‘Olu suspected that Mary likes him’

c. * Okon á-diọńgọ kẹ edem á-ma idèm ọmò
Okon Agrs-know that edem Agrs-like body his
‘Okon knows that edem like himself’

3.4 Bound by quantifier

To be sure that binding is possible (and it’s not only coreference):

(18) a. Emeshare na ọvụọ ọ�示 oma-re-øyen
boys the each-one looked body-AM-him
‘Every each boy looked at himself’

b. Ọmọkụnnin kọjkan wo ara rè
boy each-one look body his
‘Every boy looked at himself’

c. àfitówọ ẹ-má-ẹ-sé idèm ọmọmọ
all.person/everybody SM-TM-SM-look body their
‘Everybody looked at himself’
3.5 Distribution: *Finite subject

Certain languages (e.g. Modern Greek - Anagnostopoulou & Everaert 1999 - and Georgian - Amiridze 2006) allow anaphors as subjects of finite clauses — has to be assessed for the languages under investigation:

(19) a. *Ara rè lo sójä ní ànà [Yoruba]
  body his go to market at yesterday
  ‘Himself went to the market yesterday’

b. *Ọpọ ẹniyàn kò féran Alóngé, ọgbọn ara rè féran won
   many people NEG like Alonge but body his like them
   ‘Many people do not like anchovies, but he likes them’ [Yoruba]

3.6 Distribution: OK In non-co-argument position (locative PPs)

(20) a. Isali mré orodeko kere oma-re-oyen / re-oyen [Urhobo]
   Sally see.PST snake near body-AM-her / AM-her
   ‘Sally saw a snake near her’

b. Ọjó í ọjọ ní ègbé, ara rè / rè [Yoruba]
   Ojo see snake at side body his / his
   ‘Olú saw a snake besides him’

c. Mary á-má-kít wèd ké èdém ọmọ [Ibibio]
   Mary SM-TM-see book LOC body her
   ‘Mary saw a book behind her’

Urhobo and Yoruba also allow a bound pronominal in this position. The Ibibio data leave this open so far.

3.7 Proxy readings

(21) a. Olú rọra wè ara rè kí amọ nà má ba [Yoruba]
   Olu carefully wash body his COMP clay the NEG damage
   ‘Olu washed himself carefully, so as not to damage the clay.’

b. ọ mré oma-re-oyen kasa-kasa [Urhobo]
   3SG saw body-AM-3SG everywhere
   ‘He saw himself everywhere’
   (no ‘his statue’ interpretation possible)

c. Me mré oma-mé wè omá-wen [Urhobo]
   1SG see myself LOC body-2SG.POSS
   ‘I see myself in you’

• Proxy-readings available in Yoruba and Ibibio.
• Urhobo doesn’t allow a statue reading.

3.7 Proxy readings

To interpret this difference, the following questions are of interest:

• What is the range of proxy-interpretations in Urhobo in general?
• Does Urhobo allow proxy readings at all?
• Are there restrictions on proxy-readings specific to reflexive predicates?
  – pragmatically conditioned limitations on the range of admissible proxies (‘proxies must be sufficiently similar’, as suggested by (21c))
    • E.g. body is still really one’s body in Urhobo → restricts available proxies.
  – syntactic restriction, due to chain formation as with Dutch zich
3.8 Exemption and BPRs

- Question: Are the equivalents of (1c), where SELF movement is blocked in a coordinated structure, wellformed in the languages under investigation?
  
  (1) c. Max was happy that the queen invited [Mary and himself]

- So far, we don’t know whether this is the case, and further research is needed.
- Note, that whether exemption is expected or not does not only depend on the nature and position of the head, but also on the nature of the specifier/POSS element.
  - For instance, in Dutch *zich*, carries its own dependency requirement. So, where *pron-zelf* is exempt in the relevant contexts in Dutch, for independent reasons *zich-zelf* never is (see Reuland 2011 for discussion).

4. Comparative Perspective

- While the BPRs in the Afranaph data base all exhibit a local binding requirement (that is, they all obligatorily reflexivize the predicate they are construed with), this does not hold for all BPRs cross-linguistically.
- A language reported to have BPRs with no binding enforcement is Peranakan Javanese (PJ) (Cole et al. 2008).

Excursion: Licensing reflexivity

Question: What makes reflexivity special?

Hypothesis (Reuland 2008, 2011):
  The computational system cannot handle two identical variables on a verbal grid.
  → reflexive predicates must be licensed.

Licensing involves two main strategies:
- An operation on argument structure: the valence of the predicate is adapted (reduction, bundling of thematic roles; Reinhart & Siloni 2005).
- Protection: one variable is structurally embedded as PRON-SELF, POSS-BP
  → (Ax (V (x, f(x))))
  → (Ax (V (x, [x[N]]))) ([N] being interpreted as a proxy of x)

NB: Licensing by protection does not entail a local binding obligation.

4.1 Peranakan Javanese

- In PJ the reflexive *awake dheen* ‘body his’ can be used in local contexts to license reflexivity:
- It keeps the arguments distinct as in (22a), but does not enforce reflexivity, witness (22b):

  (22) a. Tono, ketok awake dheen nggon kac
    Tono see body-3 3sg in mirror
    ‘Tono saw himself in the mirror’

  b. Ali, ngomong nek aku pikir (Tono ketok awak-e dheen[t]/y)
    Ali N-say COMP 1sg think Tono see body-3 3sg
    in mirror
    ‘Ali said that I thought that Tono saw himself/him in the mirror’
4.1 Peranakan Javanese

- From the current perspective, to be able to license reflexivity it is sufficient that *awake dheen* is syntactically and semantically complex, which seems straightforward.
- But: Why doesn’t it enforce reflexivity? Two options:
  1. lexical (*awake* is not attracted);
  2. structural (*awake* cannot move onto the verb).
- Note, that there is another complex anaphor in PJ, *awake dheen dhewe* ‘body his self’. As (22c) shows, this anaphor is obligatorily locally bound.

(22) c. Bowo ngomong nek aku pikir [Tono, ketok awake dheen]
    Bowo N-say COMP 1sg think Tono see body-3 3sg
    dhewe in mirror
    ‘Bowo said that I thought that Tono saw himself in the mirror’

4.2 PJ vs Yoruba

- Given the analysis of PJ, the internal structure of anaphoric expressions in the African languages discussed merits attention.
- Consider Yoruba: the BPN is also in the left periphery. Choice among options depend on details of the structure that are as yet unclear.
- For instance, if in Yoruba *ara* ends up in its PF position by head-movement, further – covert – movement into the verbal domain would indeed be expected to be fine, yielding local binding as is found, and thus long-distance binding is ruled out, (23).

(23) *Olú fura pé Mắriä féràn ara rě* [Yoruba]
    Olu suspect that Mary likes body his
    ‘Olu suspected that Mary loved him’

4.3 Inclusive reference

Consider further “inclusive reference”:

(24) Laadì taa soöki kāän-sù_lx [Hausa]
    Ladi 3SG criticize head-3PL
    ‘Ladi criticized themselves’

- Protection by the BPR is necessary as one of the instantiations of the predicate is reflexive (assuming a distributive reading).
  - In terms of licensing we have the same case as in *John admired [Mary and him*[self]], where self is required since otherwise the reflexive instantiation of the predicate would not be licensed.
- Yet, the predicate in (24) is not reflexive (if it were forced to be reflexive, the sentence would be ill-formed, since subject and object don’t match in number)) → movement is not forced → how prevented?
- For firm conclusions it should be determined if the pronominal in cases like (24) is ruled out.
4.3 Inclusive reference

Which factors may block reflexive-marking:

- Syntactic: Structural (XP on a left branch) or Conditions on chain formation (sù is fully specified for Φ-features and mismatches with the antecedent in number)?
- Lexical (conditions on attraction)

• Further investigation both of the binding patterns in Hausa and of its DP structure is required.
• NB: BPRs in Yoruba cannot be used with inclusive reference, which is consistent with general local binding obligation of ara won, as discussed above:

(25) *Olù fèràn ara won [Yoruba]
Olù likes body their ‘Olù likes themselves’

References

5. Conclusion

- Minimal assumptions about the syntax and semantics of complex reflexives allow us to generalize over SELF-anaphors and BPRs.
- More detailed analysis of BPRs in selected African languages and their binding behavior.
- As is to be expected if one sets out to generalize from patterns in well-described languages to patterns in less-well described languages, crucial data points are lacking. The goal of this contribution is therefore three-fold:
  - to show that a number of basic properties of the anaphoric systems in the languages discussed follow from the theory as developed so far
  - identify issues that require further investigation
  - provide a perspective on what we will have to look for in order for these issues to be resolved.