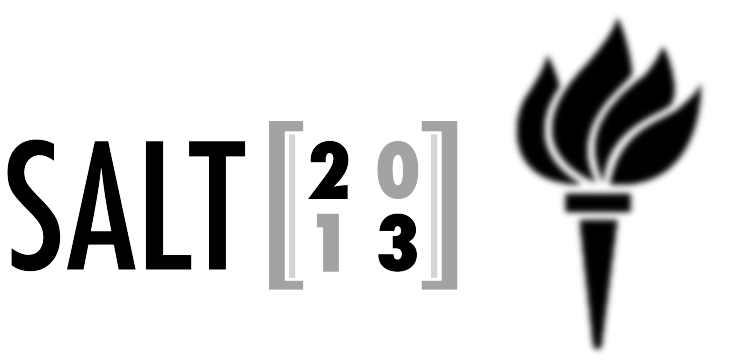


Quantifier-Internal Anaphora and Generalized Association with Distributivity

Dylan Bumford¹ (dbumford@nyu.edu)

Chris Barker¹ (chris.barker@nyu.edu)

¹New York University



Different as “Internal” Anaphor

- (1) a. John read a book. Fred read a different book. #internal
 b. Every boy read a different poem. internal
 c. The boys read a different poem. #internal
 d. The boys read different books. internal

Observation: Internal *different* can associate across intervening distributors

- (2) The boys gave the girls different poems
 (3) Every boy gave every girl a different poem
 (4) Each traffic engineer insisted that every intersection she controled had to have a different speed at which its lights changed.
 (5) It's a disaster when a news anchor interviews a pundit who has recently appeared on a competitor's network. So during an election year, each news anchor makes sure she interviews a different expert from each party.

Generalized AwD

- **Association with Distributivity** (AwD; Brasoveanu 2011): distributive quantifiers routinely duplicate discourse information, and thereby make available *pairs* of individuals

John ate each meal in a different room:

$$[j] \rightarrow \left\{ \begin{array}{l} \langle [j \text{ b}], [j \text{ l}] \rangle \\ \langle [j \text{ b}], [j \text{ d}] \rangle \\ \langle [j \text{ l}], [j \text{ d}] \rangle \end{array} \right\} \rightarrow \left\{ \begin{array}{l} \langle [j \text{ b } r_1], [j \text{ l } r_2] \rangle \\ \langle [j \text{ b } r_1], [j \text{ d } r_1] \rangle \\ \langle [j \text{ l } r_2], [j \text{ d } r_1] \rangle \end{array} \right\}$$

- **Quantifier-Internal Anaphora:** *different* merely checks that the copies opened up by the distributor differ in the relevant index
- **The problem:** in Brasoveanu, there is only one distributive channel (roughly, the second column), and each distributor overwrites it. *Incorrectly predicts (3)–(5) are unambiguous.*
- **AwD Generalized:** allow each distributor to introduce a new point of pairwise variation, and then tell *different* where to look to make the appropriate comparison

Fragment

Building on Brasoveanu 2011 and de Groote 2006; see B&B (to appear) for full details.

- everyⁿ** $\lambda PQck . (\forall x, y, x \neq y . P n c' T \rightarrow (P n ; Q n) c' T) \wedge k c$, where $c' = [c_1^{x/n}, c_1^{y/n}, \dots, c_{|c|}^{x/n}, c_{|c|}^{y/n}]$
aⁿ $\lambda PQck . \exists x_1, \dots, x_{|c|} . (P n ; Q n) c' k$, where $c' = [c_1^{x_1/n}, \dots, c_{|c|}^{x_{|c|}/n}]$
and (;) $\lambda pqck . p c (\lambda c' . q c' k)$ **diff_{ij}** $\lambda P n . P n ; (\lambda ck . (c'_{1,2} \neq c'_{1,4}) \wedge k c)$
boy $\lambda nck . (\forall i \in c . i_n \in \text{boy}) \wedge k c$ **poem** $\lambda nck . (\forall i \in c . i_n \in \text{poem}) \wedge k c$
read $\lambda nmck . (\forall i \in c . \langle i_n, i_m \rangle \in \text{read}) \wedge k c$ **give** $\lambda lnmck . (\forall i \in c . \langle i_l, i_n, i_m \rangle \in \text{give}) \wedge k c$

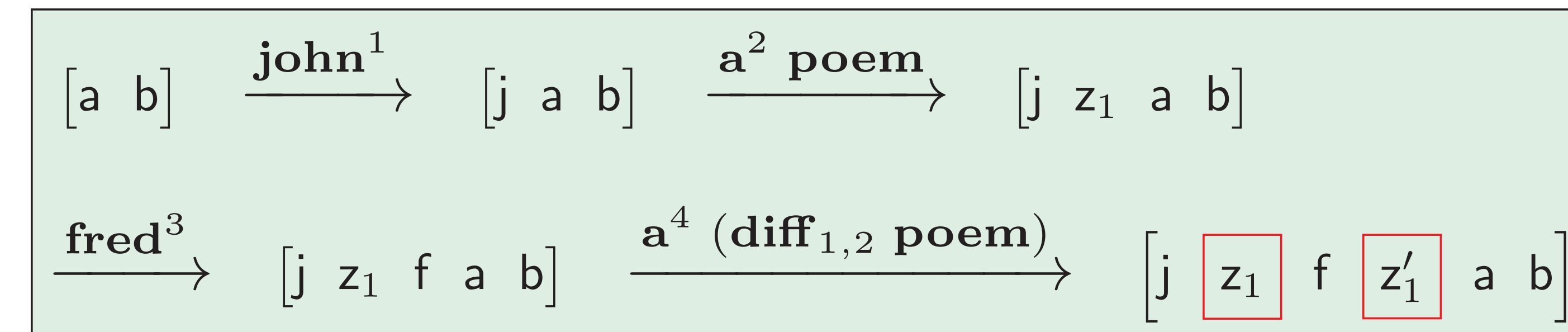
Derivations

- (6) John read a poem. Fred read a different poem.

$$(\text{john}^1 (\lambda m . (\text{a}^2 \text{poem}) (\lambda n . \text{read } n m))) ; (\text{fred}^3 (\lambda m . (\text{a}^4 (\text{diff}_{1,2} \text{poem})) (\lambda n . \text{read } n m)))$$

$$\lambda ck . \exists z_1, \dots, z_{|\zeta|} . (\forall i \in \zeta . i_2 \in \text{poem}) \wedge (\forall i \in \zeta . \langle i_2, i_1 \rangle \in \text{read}) \wedge$$

$$\exists z'_1, \dots, z'_{|v|} . (\forall i \in c' . i_4 \in \text{poem}) \wedge (c'_{1,2} \neq c'_{1,4}) \wedge ((\forall i \in c' . \langle i_4, i_3 \rangle \in \text{read}) \wedge k c')$$



where $\zeta = [c_1^{j/1}, \dots, c_{|c|}^{j/1}]$
 where $\varsigma = [\zeta_1^{z_1/2}, \dots, \zeta_{|\zeta|}^{z_{|\zeta|}/2}]$
 where $v = [\varsigma_1^{f/3}, \dots, \varsigma_{|v|}^{f/3}]$
 where $c' = [v_1^{z'_1/4}, \dots, v_{|v|}^{z'_{|v|}/4}]$

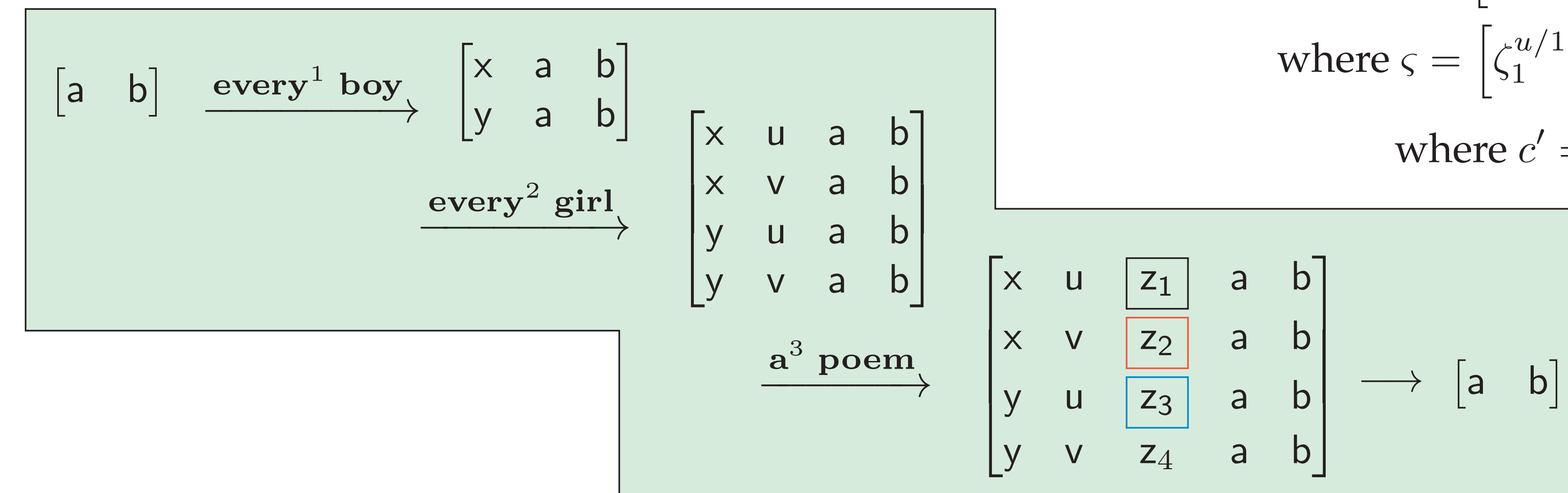
- (7) Every boy gave every girl a different poem

$$(\text{every}^1 \text{boy}) (\lambda m . (\text{every}^2 \text{girl} (\lambda n . (\text{a}^3 (\text{diff}_{\{2,3\}} \text{poem})) (\lambda l . \text{give } l n m))))$$

$$\lambda ck . (\forall x, y, x \neq y . (\forall i \in \zeta . i_1 \in \text{boy}) \rightarrow \forall u, v, u \neq v . (\forall i \in \zeta . i_2 \in \text{girl}) \rightarrow$$

$$\exists z_1, \dots, z_{|\zeta|} . (\forall i \in c' . i_3 \in \text{poem}) \wedge (c'_{2,3} \neq c'_{1,3}) \wedge (c'_{3,3} \neq c'_{1,3}) \wedge ((\forall i \in c' . \langle i_3, i_2, i_1 \rangle \in \text{give})) \wedge k c$$

where $\zeta = [c_1^{x/1}, c_1^{y/1}, \dots, c_{|c|}^{x/1}, c_{|c|}^{y/1}]$
 where $\varsigma = [\zeta_1^{u/1}, \zeta_1^{v/1}, \dots, \zeta_{|\zeta|}^{u/1}, \zeta_{|\zeta|}^{v/1}]$
 where $c' = [\zeta_1^{z_1/3}, \dots, \zeta_{|\zeta|}^{z_{|\zeta|}/3}]$



Adding Plurals

Plurals build sums, which can be split apart by a covert distributive operator (' Δ_j '), but neither process distributively duplications information

- theⁿ** $\lambda PQck . (P n ; Q n) [c_1^{\oplus P/n}, \dots, c_{|c|}^{\oplus P/n}] k$
-s $\lambda P nck . \forall x \ll \bigoplus_{i=1}^{|c|} (c_i)_n . P n c' T \wedge k c$, where $c' = [c_1^{x/n}, \dots, c_{|c|}^{x/n}]$
 Δ_j $\lambda P nck . \forall i \in c . \forall x \leq i_j . P n c' k$, where $c' = [c_1^{n \rightarrow x}, \dots, c_{|c|}^{n \rightarrow x}]$

Next: Unify Sg. and Pl. *Different*?

- Brasoveanu accounts for (8) by optionally allowing *different* to introduce its own distributivity

- (8) The boys read different poems

- This undercuts the idea that internal *different* exploits a special feature of distributive quantifiers
- **Yet, outside of singular/plural DPs, *different* and its relatives do not distinguish between universals, plurals, adverbials, etc.**

- (9) a. The boys (all) laugh differently
 b. {Each product, the products} differ(s) slightly
 c. {John and Bill, Every student} is/are different

- Alternative: let *different* always do its own distributing; try to account for the contrast between sg. and pl. *different* in a more general theory of the licensing of internal singular DPs

- (10) a. Every boy read a poem internal
 b. The boys read a poem #internal

References

Barker, C. and D. Bumford. To appear. Association with distributivity and the problem of multiple antecedents for singular *different*. *L&P*.
 Brasoveanu, A. 2011. Sentence-internal *different* as quantifier-internal anaphora. *L&P*, 34, 93–168.
 de Groote, P. 2006. Towards a Montagovian account of dynamics. In *Proceedings of SALT XVI*.