

Consonant.

- Rules are divided into sets & in each successive step a set of rules are applied.

9 Syntactic & semantic constraints on coreference.

→ i Coreference occurs when two or more expressions in a text refer to the same person or thing; they have the same referent. Eg. Bill said he would come.

ii The proper noun bill and the pronoun he refers to the same person namely to bill.

iii Coreference occurs when one or more expressions in a document refer back to the entity that came before it.

x Reference resolution also filters the set of possible referents on the basis of certain relatively syntactic & semantic constraints.

① Number Agreement:

- Referring expressions & their referents must agree in number.

For English, this means distinguishing between singular & plural references.

- pronouns categorization with respect to number.
- Singular - she, her, he, him, his, it.
- Plural - we, us, they, them.

• Example: John has a new Acura. it is red.

John has three new Acura. they are red.

John has a new Acura. they are red.

John has a three new Acura. it is red.

## ② Person Agreement:

- Referring expressions & their referents must agree in same person.
- English distinguishes between three forms of person:

- First - I, we, me, us, my, our.

- Second - you, yours.

- Third - he, she, they, him, her, them, his, their.

Example: Zuba & I bought a camera. we like capturing nature scenes. (we = I & Zuba)

- Zuba & Prabha bought a camera. we like capturing nature scenes.
- Resolving we into Zuba & Prabha incorrect.

## ③ Case Agreement:

- The position where pronoun is used constrains its form.

- Example: In object position we use him, her, them.

- In subject position we use he, she.

## ④ Gender Agreement:

- Generally objects are referred by either male pronouns (he, his) or female pronouns (she, her) and neutral objects take it as gender.



Example: Zuhra bought a printer. She is printing now (she = Zuhra, not printer)

- Zuhra bought a printer. It is printing now (it = printer, not Zuhra)

#### ⑤ Binding Constraints:

- Reflexive pronouns like himself, themselves have constraints on which nouns in the same sentence can be referred to;

Example:

John bought himself a new car (John = himself)

John bought him a new car (John ≠ him)

#### ⑥ Recency:

- Entities situated closer to the referring phrase tend to be more salient than those further away.
- Pronouns can't go more than a few sentences away.

Eg - The doctor found an old map in the captain's chest. Jim found even an older map hidden on shelf. It describes an island.

Here the pronoun 'it' is more likely to refer to Jim's map than the doctor's map.

#### ⑦ Grammatical Role / Hobbs distance:

- Entities are more likely to be in subject position than that of object position.
- Eg: Billy went to the restaurant with Jimmy. He called for a glass of juice (he = Billy)

#### ⑧ Jimmy Repeated mentions:

- Refers to the idea that entities that are focused on in prior discourses are more likely to continue to be focused on subsequent discourses.

Eg: Lucid was the first among the six women to

Join the astronaut program. A veteran of 5 space flights, logging 223 days in space, she holds the international record.

In 1998 she wrote in the Scientific American that she viewed the 16 mission.

### ⑨ Parallelism

- Zuhra went with Suhra to the computer shop.
- Danish went with her to the computer institute.
- Her refers to Suhra & not Zuhra, due to structural parallelism.

### ⑩ Verb Semantics

- Certain verbs take certain type of arguments and may prejudice the resolution of the pronouns.
- Eg: John parked his car in the garage after driving it for hours (it = car).

Q <S> she ask you to wait patiently <S>  
 <S> he ask me to help him <S>

<S> / they = they  
 they / report = report  
 expect / us = expect  
 us / to = to  
 to / arrive = arrive  
 early / early = early  
 <S> /

next word for

① to  
 So the highest  
 right side is  
 wait, •

Q <S> Sam  
 <S> do

→ ① Sam  
 & I /

② (il...)