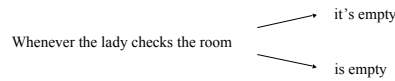


Functions of Intonation Boundaries during Spoken Language Comprehension in English

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Background

• Temporary Syntactic Ambiguity



• Boundary location determines initial structure in cross-modal naming (Kjelgaard & Speer, 1999)



HEAR AN AUDITORY FRAGMENT



SEE & NAME A VISUAL TARGET

{ Whenever the lady checks the room } IT'S < IS

{ Whenever the lady checks } { the room } IS < IT'S

• Same effect for intonation boundaries (IP) and intermediate boundaries (ip)

{ [[...]_{ip} ...]_{ip} }_{IP}

• Verb set equi-biased (i.e., few verbs were strongly biased toward either structure)

• Plausibility determines initial structure for equi-bias verbs, but has little effect on biased verbs in eye tracking (Garnsey, Pearlmuter, Myers, & Lotocky, 1997)

Research Questions

• Do prosodic boundaries disambiguate this ambiguity regardless of verb bias?

• How do prosodic boundaries disambiguate structure?

Experimental Variables

• Verb Bias: Three Sets (Connine et al. [1984] sentence completion data)

Whenever the lady...

LOADS the car { IT'S / is } packed full.
CHECKS the room { IT'S / IS } empty.
MOVES the door { it's / IS } easy to see.

TRANSITIVE (all prefer DO)
EQUI (mixed, verbs = Kj & Sp, 1999)
INTRANSITIVE (all prefer NO DO)

• Location/Type of Prosodic Boundary

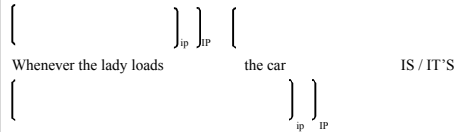
Whenever the lady loads]_{ip}] IP the car
Whenever the lady loads the car]_{ip}] IP

EARLY (ip, IP)
LATE (ip, IP)

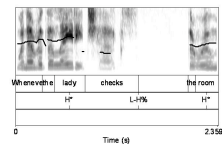
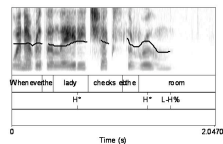
• Plausibility of Ambiguous NP as Direct Object

Whenever the lady loads { THE VAN / the sun }

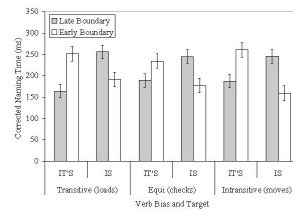
Experiment 1: IPs, Verb Bias, & Plausible NPs



Examples of Late and Early Intonation Phrase (IP) Boundaries



Experiment 1: Overall Cross-Modal Naming Times



Late Boundary: IT'S < IS
Early Boundary: IS < IT'S

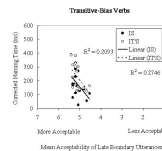
IP boundary location determines initial structure as in Kjelgaard & Speer (1999)

Disambiguation occurs regardless of verb bias

• INITIAL HYPOTHESIS: Early boundary = intransitive syntax & semantics

• Prediction: Naming times to IT'S following an early boundary should decrease as transitivity increases

• REVISED HYPOTHESIS: Early boundary = intransitive syntax, but dominant meaning of the verb

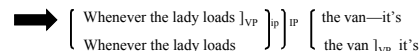


Intransitive-bias verbs: No correlations

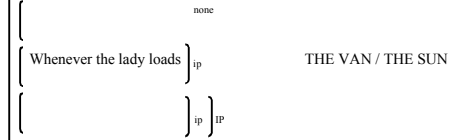
Transitive-bias verbs: Naming times to **both** targets (IT'S and IS) **increase** as transitivity increases

• Early boundary transitive-bias verbs seem to undergo semantic reanalysis to an intransitive interpretation

• RESULT: alignment between prosodic and syntactic boundaries



Experiment 2: Boundaries, Verb Bias, & Plausibility



• Find additional evidence of conflicting semantic and syntactic representations in proportion and distribution of cross-modal naming direct object sentence completions

Experiment 2: Proportion of Spoken Direct Object Sentence Completions

Boundary	Transitive		EQUI		Intransitive	
	Plaus	Imp	Plaus	Imp	Plaus	Imp
None	.87	.32	.81	.27	.82	.10
ip	.75	.22	.66	.11	.48	.03
IP	.53	.12	.42	.04	.22	.03

Decrease in DO completions from:

- Plausible to implausible DO
- Transitive-bias to intransitive-bias
- No boundary to IP boundary

• Half of transitive-bias verbs tend to elicit DO completions following an early IP boundary, and other half do not

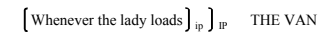
Elicit DO Following IP (N=10)

- pulls the rope (10)
- saves his job (10)
- buys the car (10)
- describes the noise (9)
- loads the van (8)
- kicks the chair (7)

Elicit Main Clause Following IP (N=10)

- paints the wall (4)
- reads the words (2)
- asks the price (2)
- kills the ducks (1)
- visits the teacher (0)
- imitates the buzzer (0)

• How can a direct object completion follow an early IP boundary?



VISUAL TARGET HAS NO GIVEN PROSODY

Conclusions

• Intonation phrase boundaries (IPs) trigger syntactic wrap-up

• Not just semantic/pragmatic wrap-up (Schafer, 1997)

• Wrap-up processes can result in conflict

{ Whenever the lady loads]_{ip}] IP { the car }

• Syntax at early IP boundary: Intransitive

• Semantics at early IP boundary: Transitive (i.e., dominant verb meaning)

• Resolution of the conflict involves other prosodic and lexical factors

• What prosody does the structurally ambiguous NP have?

• How likely is the structurally ambiguous NP as a direct object?