Conversing with a Devil's Advocate: Dialogical Dynamics of Movement and Speech in Deception and Conflict

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1. Rationale

- A novel **multi-modal** analysis to reveal unique patterns of interpersonal coordination as a function of the socio-cognitive demands of **deception**; in the context of **agreement and disagreement** conversations.
- Synergistic interdependence**: examines aspects of continuous movement and speech; co-regulatory patterns of speech, **shared** between interacting partners.
- Contrasted two hypotheses, "**coordination as**":
 - "**spontaneous affiliation**," suggests **lower degree** of coordination in deceptive and non-affiliative (disagreement) conversations.
 - "**modulated by intentional goals**," suggests deceptive conversations involve attentive monitoring and engagement of the deceived; give rise to **higher degree** of coordinated behavior at the dyadic level; unrelated to rapport.

2. Study

Method: Prior to interaction, participants' true opinions on 10 controversial topics were collected; two topics selected, one in which they **disagreed** and another in which they **agreed**; depending on condition, for one conversation, the devil's advocate took an opposite opinion of what he/she actually believes (**deception**).

After each conversation, ratings provided by each participant concerning interactional rapport.

3. Multimodal Coordination

5. Results

5.1. Movement coordination: Head

↑ In **WLCC plots**, greatest coordination revealed at near-synchronous moments, decreasing as alignment was lagged; in **interaction plot**, for **truth** conversations, peak coordination greatest for **agreement**; for **deception**, peak coordination much greater for **disagreement**; the pattern holds across all lags up to 1000ms; in **surrogate pair comparison**, no statistically significant patterns between conditions.

5.2. Speech coordination: Speech Rate

5.4. Ratings of interactional rapport

↑ **Agreement** showed **higher ratings** of rapport; **deception** (compared to truth) showed **lower ratings**, particularly for "felt understood."

5.5. Machine learning and generalizability

5-fold feature selection and cross-validation process to predict deception and conflict; **deception**: less head synchrony at lag -3 seconds (DA follows), 61.17%; **disagreement**: lower speech rate (RR & LMAX), higher overlapping turns, and fewer backchannels, 74.97%.

4. Predictions and Analysis

	Spontaneous affiliation	Intentional goals
Deception vs. truth	Lower coordination	Higher coordination
Disagreement vs. agreement	Lower coordination	No prediction

Prediction: Low-level coordination as a function of speaker's intentions, not merely mechanism of affiliation or cooperation.

Analysis: The **motion** time series analyzed with windowed-lagged cross correlation (WLCC); **speech** time series analyzed with cross-recurrence quantification analysis (CRQA):

DV	Coordination	Index characterization
RR	Amount	% of repeating values
DET	Stability	% extended repeating values
L	Stability	avg. length of repeat
LMAX	Stability	length longest repeat
ENTR	Complexity	variance of repeat
T1	Stability	avg. distance between repeat

5.3. Speech coordination: Conversational turn-taking

• **Major conclusions:** Support found for primary prediction; but also requires more nuanced view of multifunctional coordination. For **spontaneous affiliation and conflict**: speech rate measures and turn-taking showed less coordination for disagreement; interaction with movement and conflict revealed less movement with truth and disagreement; also significantly less rapport. For **modulated by intentional goals**: more structured speech rate coordination for deception; critical interaction with head movement and conflict revealing greater coordination in deception and disagreement; also significantly less rapport.

• **Future directions:** Linguistic and content analysis; comparison of individual- and dyadic-level behaviors.