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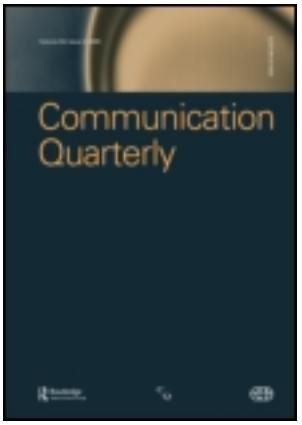

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Towards Conceptual Convergence: An Examination of Interpersonal Adaptation

Catalina L. Toma [a]
[a] Department of Communication Arts , University of Wisconsin-Madison
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Towards Conceptual Convergence: An Examination of Interpersonal Adaptation

Catalina L. Toma

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Interpersonal adaptation, or modifying one's behaviors to adjust to a communication partner, is fundamental to social interaction. Numerous concepts have been advanced to explain adaptation, such as accommodation, mimicry, and synchrony. This article reviews the prominent theories of adaptation in communication and psychology in view of understanding the nature of adaptive processes and of achieving conceptual clarity. A set of criteria is developed and used to distinguish between adaptive processes. The analysis shows that communication theories tend to view adaptation as strategic and driven by relational goals, while psychological theories focus on its unconscious and goal-independent aspects. Communication theories emphasize the interpretation of adaptive behaviors, while psychological theories do not. This review identifies theoretical gaps and suggests avenues for integration across disciplinary foci.

Keywords: Chameleon Effect; Communication Accommodation; Interactional Synchrony; Interpersonal Adaptation; Linguistic Style Matching; Mimicry

Perhaps the most central feature of human interaction is that it requires mutual adaptation. A simple conversation cannot be carried on unless communicators use language that is understandable by both, take turns speaking, and use similar rates of speech. Relationships are all but impossible if partners don't adjust to each other's interaction styles. At an even more basic level, childhood learning and socialization

Catalina L. Toma (Ph.D., Cornell University, 2010) is an assistant professor in the Department of Communication Arts at the University of Wisconsin-Madison. The author is grateful to the Hamel Family Foundation for financial support and to Ashley Downs for her valuable comments on this manuscript. An earlier version of this paper was presented at the International Communication Association (ICA) Convention, Interpersonal Communication division, Singapore, June 22–26, 2010. *Correspondence*: Catalina L. Toma, Department of Communication Arts, University of Wisconsin-Madison, 6144 Vilas Hall Madison, WI 53706; E-mail: ctoma@wisc.edu

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can only take place if infants imitate caretakers' speech and model their behaviors. For this reason, the ability to adapt to others is considered to be a hardwired characteristic, and its prevalence in human interactions is well-documented (Chartrand, Maddux, & Lakin, 2004; Meltzoff & Moore, 1983; Termine & Izard, 1988).

As research on interpersonal adaptation has accrued over several decades and across academic disciplines (e.g., communication, psychology), many facets of this phenomenon have been examined, and several distinct theoretical perspectives have been proposed to explain it. Broadly construed as the modification of one's behavior to adjust to one's communication partner(s), interpersonal adaptation has been described as accommodation (Gallois, Ogay, & Giles, 2005; Giles, Coupland, & Coupland, 1991), mimicry (Chartrand & Bargh, 1999; Scheflen, 1964), reciprocity (Burgoon, Stern, & Dillman, 1995; Burgoon & White, 1997), synchrony (Bernieri, Reznick, & Rosenthal, 1988; Condon & Ogston, 1966), or style matching (Niederhoffer & Pennebaker, 2002; Scissors, Gill, Geraghty, & Gergle, 2009). Some theoretical perspectives have focused on the modification of nonverbal behaviors (e.g., gestures, eye contact) (e.g., Burgoon et al., 1995), while others have tackled verbal behaviors (e.g., accents, vocal rate) (e.g., Cappella & Panalp, 1981; Neumann & Strack, 2000). Some have examined the strategic use of adaptation in order to achieve relational goals (e.g., Gallois et al., 2005; Giles et al., 1991), while others have highlighted its unconscious occurrence (e.g., Hsee, Hatfield, Carlson, & Chemtob, 1990).

Although rich, this body of research does not provide a cohesive and unified view of interpersonal adaptation but rather a multifaceted, complex and sometimes disjointed one. The purpose of the present article is to provide conceptual clarity in this area of research. What is the difference between the adaptive processes described earlier? Is there conceptual overlap that may be eliminated by integrating some of these concepts? Are there areas of under-theorizing, whereby the nature of some of these processes is not fully specified? Does a comparison of communication and psychology theories suggest areas for future research such that theoretical development is achieved? To this end, this article (a) systematically surveys the most prominent theories in the area, (b) proposes several key criteria which can distinguish among the various adaptive processes, and (c) uses these criteria to provide precise conceptual definitions for each of them.

Achieving conceptual clarification is important for several reasons. First, it enables a precise use of terminology, particularly as research on this topic progresses. For instance, a new line of research (Niederhoffer & Pennebaker, 2002; Scissors et al., 2009) is concerned with linguistic "similarity," or the process through which people adapt to each other's language use in computer-mediated communication. This linguistic similarity has been referred to as both linguistic mimicry and linguistic accommodation. The present review will suggest which of these terms is more appropriate given the theoretical underpinnings of each process. Second, there is substantial conceptual overlap in describing adaptive processes, with several theoretical perspectives describing identical processes under different terminology. This review will identify these areas of overlap and make suggestions for theoretical integration. Finally, this review can help set the agenda for future research by identifying gaps in

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the literature. For instance, as we will see, theories in the field of communication often treat the process of interpersonal adaptation as strategic and conscious (Gallois et al., 2005; Giles et al., 1991), whereas theories in the field of psychology treat it as unconscious and automatic (Bernieri et al., 1988; Chartrand & Bargh, 1999; Scheflen, 1964). Despite these differences, both approaches agree that adaptation leads to increased rapport between the communicators (e.g., Bernieri, 1988; Dabbs, 1969; van Baaren, Holland, Steenaert, & van Knippenberg, 2003). An important research question that emerges is whether strategic adaptation leads to more (or less) rapport than unintentional adaptation.

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Definitional Criteria

A key objective of the present review is to identify the criteria along which adaptive processes can be compared. A survey of the literature pinpoints to four such fundamental criteria: (a) the *types* of behaviors that adaptation refers to, (b) the psychological *mechanism* behind the production of these behaviors, (c) the *reception* of adaptive behavior by the communication partner, and (d) the *effects* of adaptation on interpersonal relations. Below each of these criteria is described in detail.

Behavior type refers to the specific kinds of behaviors that are enacted in order to adjust to one's communication partner. This criterion can be conceptualized across three dimensions. The first is *modality*, or the domain in which the behaviors are expressed, which can be either nonverbal or verbal. Nonverbal behaviors include gestures and postures, while verbal behaviors can refer to both vocal characteristics (i.e., accents, rate of speech, pitch and loudness) and linguistic ones (i.e., vocabulary and grammar). The second is the *similarity* of the adaptive behavior to the original behavior. Specifically, some theories propose that adaptation is accomplished by producing identical behaviors as the communication partner (i.e., direct imitation), while others also include non-identical but complementary behaviors (e.g., when one person trips, the other reaches out to offer help). The third dimension is *unit of analysis*, or the number of behaviors that count as an adaptive unit. Specifically, some theories measure individual behaviors (e.g., responding to a smile with a smile), while others consider sequences of behaviors over time (e.g., members of an orchestra playing together).

The *mechanism* behind adaptive behaviors refers to the cognitive, social, or evolutionary processes responsible for the production of these behaviors. This criterion can also be described across several dimensions. The first is *conscious awareness*, or whether communicators are consciously enacting adaptive behaviors. The second is *affiliation goal*, or whether adaptation is motivated by a relational goal, such as ingratiating oneself to one's communication partner. Note that it is possible for adaptation to be goal driven and unconscious, as when someone is motivated to gain another's trust and, as a result, unconsciously imitates the other's gestures. In this case, the goal is conscious, but the behaviors enacted in order to achieve the goal are unconscious. Third, some literature suggests that adaptation can only take place when communicators have an empathic understanding of their partners (Bavelas,

Black, Chovil, Lemery, & Mullett, 1988; Bavelas, Black, Lemery, & Mullett, 1986). In this body of work, adaptation is seen as emerging from vicariously *taking the perspective* of another, although many other theories do not include this mechanism.

The *reception* criterion refers to whether adaptive behaviors need to be witnessed and understood by their recipient. Some theoretical perspectives claim that adaptation has a communicative function, which means that it necessarily needs to be witnessed and properly decoded by another person, otherwise it fails to accomplish its "adaptive" function (Bavelas et al., 1988). In this view, imitating the behaviors of a television character does not constitute adaptation. Other theoretical perspectives do not require that a recipient be present, notice, or understand the adaptive behaviors (e.g., Chartrand & Bargh, 1999).

With respect to the *effects* of adaptation, most theoretical perspectives assume an association between adaptation and liking, rapport, and bonding between communicators (e.g., Bernieri et al., 1988; Chartrand & Bargh, 1999; Gallois et al., 2005). In case such a link is postulated, it is important to determine the causal direction of this relationship (i.e., whether adaptation leads to liking, liking someone increases the likelihood of adapting to him/her, or both). Other theories do not specify a link between adaptation and interpersonal rapport (e.g., Niederhoffer & Pennebaker, 2002).

These criteria will now be applied to describe the adaptive processes defined by the most prominent theories in this area. The review will address theories emerging from the field of communication (i.e., communication accommodation theory, interaction adaptation theory, and linguistic accommodation), as well as theories emerging from the discipline of psychology (i.e., interactional synchrony, motor mimicry, and linguistic style matching).

Communication Accommodation Theory

Overview

Communication accommodation theory (CAT) (for a recent review, see Gallois et al., 2005) originated in the 1970s as an attempt to explain shifts in people's speech styles during social encounters, such as adjusting one's accent, vocal rate, or pitch to that of an interlocutor. The theory sought to determine the conditions under which such adjustment occurred, as well as its social consequences. In its early incarnations, CAT focused on speech convergence, or the circumstances under which people match their speech to one another, and speech divergence, or the circumstances under which people do not adjust to the speech style of their interlocutors (Giles, 1973; Giles & Smith, 1979). Recent revisions of the theory (see Giles & Ogay, 2006) shift the focus from convergence/divergence to the broader processes of accommodation/non-accommodation.

At its core, CAT proposes that communication accommodation is not just a matter of exchanging information or facilitating information flow, but rather a way to manage interpersonal and intergroup relationships. Accommodation is enacted strategically when one wishes to be perceived favorably by another individual or integrated

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within a group. Conversely, non-accommodation, or strategic distancing, occurs when one wishes to either maintain one's own personal or social identity, or disassociate oneself from another individual or group.

Accommodation is defined as the process through which interactants regulate their communication in order to appear more like the individual or group with whom they are communicating (Coupland, Coupland, Giles, & Henwood, 1988; Jones, Gallois, Callan, & Barker, 1999). This can be accomplished through a variety of accommodative strategies, such as matching partners' accents, speech rate, or nonverbal behaviors; asking clarifying questions; choosing topics of conversation familiar to both partners; or adjusting language complexity to match that of the partner. Accommodating behaviors can serve both an affective function of signaling a desire for inclusion and social belongingness, and a cognitive function of increasing understandability between interactants (Giles et al., 1991).

Non-accommodation is the process of regulating communication in order to appear more distinct from the communication partner (Gallois et al., 2005). Non-accommodation can also take several forms. Counter-accommodation (previously called divergence) maximizes the difference between communicators and their interlocutors. Under-accommodation occurs when speakers simply maintain their own behavior without shifting toward the behavior or conversational needs of interlocutors. Over-accommodation occurs when communicators wish to accommodate their interlocutors, but their attempts are perceived negatively as mocking, teasing, or breaking social norms. In other words, over-accommodation is intended as accommodation but perceived as non-accommodation. For instance, a New Yorker who visits Alabama may use a slower speech rate in order to accommodate Southerners' speech style, yet it is possible that such accommodation may be perceived as condescending and patronizing.

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Definitional Criteria

Behavior type. Accommodation can occur in all modalities: nonverbal, vocal and linguistic. While a significant portion of accommodating strategies involve the production of identical behaviors as the communication partner, it is possible to accommodate by using different yet situationally appropriate behaviors, such as asking clarifying questions or avoiding interruptions. Accommodation is measured at the level of a single behavioral act (rather than sequences of behaviors), although conversations are viewed as made up of a large number of accommodating behaviors.

Mechanism. Accommodation is thought to be done consciously, when the speakers decide to ingratiate themselves to or bond with others for strategic reasons. However, some writers (Giles et al., 1991) have argued that the strategies (e.g., imitation) employed to achieve this conscious goal (e.g., bonding, being liked by others) occur beyond conscious awareness. The CAT literature does not fully clarify the extent to which accommodation is conscious or unconscious.

Accommodation is seen as goal-driven. It is elicited either by an affective goal (e.g., to bond with others), a cognitive goal (e.g., to increase communication efficiency), or both. These goals are described as conscious in the literature (Gallois et al., 2005). For instance, the New Yorker who visits Alabama and adopts a slower speech rate consciously wants to make a good impression and be liked by the Southerners. People who intend to accommodate others do not necessarily need to have a vicarious experience of others' feelings and thoughts. Perspective-taking is thus not required. In fact, it is possible that accommodations backfire when they result from a misperception of the partner's preferences and needs.

Reception. It is necessary that the intended recipient witness the accommodative behaviors, either in person, or through mediated communication (e.g., on the phone). Importantly, the recipient can be an individual person or a group. For accommodation to be successful, the recipient needs to understand it as such. When the recipient doesn't properly decode the partner's accommodating intent, "actual" accommodation either doesn't happen at all or is perceived negatively.

Effects. When correctly decoded, accommodation leads to increased interpersonal attraction. This occurs through the similarity-attraction link, whereby people are assumed to prefer others who are similar to themselves (Byrne, 1971). Because accommodation is a strategy that makes one person more similar to another, it results in increased interpersonal attraction.

An important issue is why people are motivated to achieve personal and social attraction on the one hand, or personal and social distancing on the other. In addressing this question, CAT borrows from Tajfel and Turner's (1979) social identity theory, which posits that people manage their identities through associating or disassociating themselves from others. Hence, when people perceive another individual or group as positive, they will have a goal to associate themselves with them and will use the strategy of accommodation to accomplish this goal. Conversely, when an individual or group is negatively perceived, people will have a goal to differentiate themselves and reassert their own identity, and will therefore resort to the strategy of non-accommodation (Gallois et al., 2005).

Interaction Adaptation Theory

Overview

Interaction Adaptation Theory (IAT) (Burgoon & White, 1997; Burgoon et al., 1995) is similar to CAT in that it is concerned with how communication partners adjust to each other in interaction. However, IAT departs from CAT in that it focuses solely on dyadic interaction rather than both dyadic and intergroup interactions, and only on nonverbal behaviors (e.g., gaze, smiling) rather than nonverbal, vocal, and linguistic behaviors. IAT conceptualizes the process of adjusting to the communication partner as reciprocity (similar to CAT's accommodation), while non-adjustment is seen as compensation (similar to CAT's non-accommodation). According to IAT, it is

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possible to enact both reciprocal and compensatory behaviors during the course of a single interaction—a back-and-forth pattern called "interactional synchrony."

Reciprocity is defined broadly as occurring "when one communicator responds, in a similar direction, to a partner's behavior with behavior of comparable functional value" (Burgoon et al., 1995, p. 129). As such, reciprocity takes place even when the behaviors themselves are not the same but serve a similar function. Compensation occurs "when one communicator responds with behavior of comparable functional value but in the opposite direction" (Burgoon et al., 1995, p. 129). Maintenance, or resisting changing one's behavior in response to the partner's, is also considered a form of compensation. An example of compensation is when one communicator expects a handshake from one's partner, but failing to receive one, extends her own hand to the partner.

The main contribution of IAT is that it provides an extensive examination of *when* communicators are likely to engage in reciprocity or in compensation. According to IAT, individuals enter every social interaction with a set of requirements (R), expectations (E), and desires (D) vis-à-vis their communication partners. Requirements refer to what communicators believe they *need* during the interaction (e.g., loud vocal volume or physical proximity if the communicator is hard of hearing). Expectations refer to what is anticipated during the interactions, and they are usually based on social norms, generic communication functions, past experience with the partner, or information about the partner and his/her behavior (e.g., a communicator may not expect to talk about personal issues with her boss). Desires refer to goals and preferences for the interaction, and they can be based on temperament (as when a submissive person might prefer to interact with a more dominant partner) or social norms (as when Asians desire more self-deprecating behaviors from their interaction partners than Caucasians) (examples from Floyd & Burgoon, 1999). Requirements, expectations and desires often influence one another and as such are not entirely distinct.

Together, requirements, expectations and desires work to form the communicator's interaction position (IP), which represents the behavioral patterns that are needed, anticipated, and preferred in an interaction. The IP determines whether the partner's behaviors will be reciprocated or compensated. One critical observation is that communicators may not always know what their partner's IP is, and as such they adjust their behavior to the partner's *actual behavior* rather than to the partner's IP. Specifically, when the IP of a sender matches the IP of the receiver, the theory predicts that the receiver will match the sender's behaviors. However, it is possible that the IP of the communication partners is incongruent, in which case requirements, expectations and desires need to be weighed in order to determine whether reciprocity or compensation should be enacted. The theory is not entirely clear on how this weighing is done, but generally speaking, it claims that satisfying requirements is more important than satisfying desires or expectations.

Another consideration in the adaptation process is the perceived valence of the partner's behavior. If the partner's behavior is perceived as more positive than anticipated, the communicator will reciprocate, making his/her own behavior more

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similar to that of the partner. As in the earlier example, if the communicator wants but does not expect a handshake and the partner provides one, that handshake will be reciprocated. However, if the partner's behavior is perceived as negative, the communicator will engage in compensation, maintaining his/her own style or even exaggerating differences. For instance, if the communicator wants and expects a handshake but the partner doesn't provide it, the communicator might volunteer a handshake herself (Littlejohn & Foss, 2008).

Definition Criteria

Behavior type. Reciprocity refers to the adaptation of both vocal and nonverbal behaviors, although in its original conceptualization, it focused soley on nonverbal behaviors. Reciprocal behaviors do not have to identically match those of the interaction partner, but they need to be functionally similar (e.g., an animated speech is received with intent listening). Although the literature describes reciprocity as occurring at the level of individual behaviors (e.g., a hug is met with a hug), IAT is concerned with the general *pattern* of behaviors enacted throughout the course of an interaction.

Mechanism. The description of requirements, expectations, and desires suggests that these are conscious elements and that communicators are well aware of their own interaction position. These behaviors can be conceptualized as goal-driven in the sense that communicators have certain desired outcomes for the interaction. However, IAT does not claim that communicators have a specific goal to ingratiate themselves to others or to distance themselves from them, as CAT does. IAT does not require a vicarious experience of the other's interaction position for reciprocity or compensation to occur. In fact, the theory claims that senders do not know or even respond to the receivers' interaction position but rather to the receivers' observable actions.

Reception. IAT postulates that reciprocity and compensation can only be enacted during a dyadic interaction, and as such these behaviors are by definition directed at a communication partner who needs to be physically present to observe them. These behaviors cannot be directed at a TV character, for instance. However, reciprocal behaviors may or may not be decoded correctly by the communication partner.

Effects. IAT claims that reciprocity and compensation patterns have either positive or negative consequences for the interaction, depending on the match between the sender's interaction position, the receiver's interaction position, and the actual behaviors enacted by both.

Interactional Synchrony

Overview

Interactional synchrony was originally conceptualized by Condon and Ogston (1966), who noted that all body movements are synchronized to one's own speech

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rhythms. The authors then noted that this phenomenon doesn't only occur *within* but also *between* people, such that individuals synchronize to the rhythms and movements of those with whom they are interacting.

According to this perspective, the key aspect of interactions is not the similarity between speakers' individual behaviors, such as smiling or gesturing, but the rhythmicity of the overall interaction, where patterns of behavior are coordinated over time. Synchronous occurrences are those that reflect reciprocal and mutually rewarding behavioral exchanges. Asynchronous occurrences are those that reflect one-sided, unresponsive or intrusive behavioral exchanges, such as those in which one member's behavior is not responded to by the other, or is responded to in an inappropriate fashion.

The majority of empirical work in this area has been on the synchrony between mothers and infants, both in utero and in early childhood. Examples of synchrony are: the infant vocalizes and the mother responds to the vocalization, but also the infant cries and fusses and the mother soothes him/her. Examples of non-synchrony are: the infant vocalizes and the mother ignores her, or the infant cries and the mother tries to initiate play instead of soothing.

Bernieri and colleagues (Bernieri & Rosenthal, 1991; Bernieri et al., 1988) have distinguished between three synchrony-related processes:

1. Interaction rhythms: This is the rhythmicity component of synchrony and has been defined as "the congruence between the behavioral cycles of interaction partners" (Bernieri et al., 1988, p. 244). It occurs when the sequence of behaviors enacted by one communicator is matched by the sequence of behavior enacted by one's partner.
2. Simultaneous behavior: This occurs when one person directly imitates or mirrors another person's limb movements or body configuration, including simultaneous movement changes.
3. Behavioral meshing: This occurs when two separate individuals' behaviors form a single, unified, and meaningful whole. For instance, a partner may nod at appropriate junctions during a speaker's utterances to form a dialogue.

Synchronicity is assumed to reflect an innate need for predictable rhythms, and as such it is theorized to have a biological origin. This claim is supported by evidence that interactional synchrony begins in utero and is evident as early as 20 minutes after birth, even in nonhuman primates (e.g., chimpanzees). The presence of synchronicity so early in life implies that it may fulfill basic survival needs of bonding, physical safety, and comfort (Cappella, 1991).

In addition to this bonding function, Condon and Ogston (1971) suggested that synchrony is a fundamental and universal characteristic of human communication, the absence of which is indicative of dyslexia, learning disabilities, and even psychopathology. However, synchronicity can also be used strategically to facilitate or inhibit social interaction. Kendon (1970) suggested that adults may use synchrony to signal interest, involvement, rapport, similarity, and approval. Similarly, children may use synchrony strategically to promote interaction and dissynchrony to disengage from interaction (Tronick, Als, & Brazelton, 1977).

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Definition Criteria

Behavior type. Both nonverbal and vocal behaviors can be synchronized. Additionally, it is possible to synchronize one's own vocal with nonverbal behaviors, as when a communicator accompanies her speech with gestures. This is known as intrapersonal synchrony.

For simultaneous behavior to occur, communicators and their partners need to use identical behaviors at the same time. For behavioral meshing to occur, interactants need to use different yet functionally equivalent behaviors that together form a unified whole (e.g., one person moves forward and the other steps back). Interaction rhythmicity involves using identical behavior sequences over time. Simultaneous behavior and behavior meshing refer to the synchrony of individual behaviors, while interactional rhythmicity refers to the coordination of multiple behaviors over time.

Mechanism. Synchrony is assumed to be an unconscious behavior that is hardwired through evolutionary forces. Synchrony is seen as arising from a built-in human need for patterning and organization, rather than from specific interaction goals (e.g., to be liked by one's partner). However, it is possible for synchrony to be used strategically to engage or disengage from social interactions. In this case, the literature suggests that the interaction goal is conscious, but the synchronous behaviors used to accomplish it are not. Perspective taking is not required for synchrony.

Reception. Because it arises unconsciously, synchrony is not necessarily addressed to an interaction partner. When infants synchronize with their mothers in utero, it is not because they want their mothers to notice it. Additionally, it is possible to synchronize one's own speech with one's own behavior, and also to synchronize with non-human elements (e.g., circadian rhythms, where people synchronize sleeping and waking patterns with the rising and setting of the sun).

Effects. Generally speaking, synchrony is postulated to lead to increased positive affect in interactions. However, because it is seen as a natural, built-in tendency, the effects of synchrony on interactions are generally not addressed. Rather, the absence of synchrony is described as distressing or negative, especially for infants.

Motor Mimicry

Overview

The process of imitating others' nonverbal behaviors (i.e., gestures, postures, and facial expressions) has been broadly construed as motor mimicry (Chartrand & Bargh, 1999), yet several lines of research have taken different views on it. Mainstream research on motor mimicry has addressed the imitation of speech/vocal characteristics, facial expressions, gestures, and postures, and has claimed that this process occurs mostly unconsciously yet it can also been done consciously (i.e., when confederates purposefully mimic participants' behaviors in experiments) and that it is driven by an empathic understanding of the communication partner (although this

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claim has not been directly tested). The vast majority of research in this area has claimed that mimicry increases liking and rapport among interactants. For instance, Bernieri (1988) had strangers teach each other words and definitions for 10 minutes. Results showed that the couples whose movements were most in synch with each other liked each other the most.

Another branch of research in this area, the ''chameleon effect'' (Chartrand & Bargh, 1999), has offered a slightly different conceptualization of mimicry. In this view, mimicry is a reflection of humans' chameleon-like ability to fit in with their environment, and as such it is an unconscious, goal-independent process, although having a goal to affiliate increases the probability of enacting mimicking behaviors. This type of mimicry is described as being triggered by features of the environment rather than by an empathic understanding of other people, and it is not directed at anyone in particular. As such, it can occur when watching television characters or even reading books.

Chameleon-like mimicry is assumed to be widely pervasive. Chartrand and Bargh (1999) showed that even participants who were told not to make eye contact with or smile at their partner (who was a confederate) mimicked the other's face-rubbing and foot-shaking gestures. Additionally, this mimicry occurred even when the confederate had a sullen and unfriendly facial expression, suggesting that affiliation goals are not necessary for the enactment of mimicry. Similarly, Berger and Hadley (1975) placed a set of electrodes on participants' arms and then showed them a videotape of an arm-wrestling match. When watching the match, participants showed increased muscular activity in their forearms and wrists, suggesting that gestural mimicry can occur unconsciously and is not necessarily a communicative act.

Yet a different conceptualization of mimicry emphasizes its communication value, and as such differs markedly from the chameleon effect. Specifically, Bavelas and colleagues (1988) have argued that mimicry has a fundamental communicative function: It is meant to suggest to communication partners that their message is understood and that they are liked (''I am with you'' or ''I like you''). In this view, motor mimicry can only occur in interactions (i.e., both mimicker and person being mimicked need to be physically present) and, most importantly, the person being mimicked has to notice these mimicking behaviors and understand them as a sign that the interaction is going well. This school of thought agrees that motor mimicry reflects a vicarious experience of empathy, but it adds that mimicking behaviors are not just a spill-over of this internal state, but that they serve an important communicative function of signaling unity and rapport. Although this theoretical perspective assumes mimicry is a strategic process, it does not specify the circumstances which motivate people to mimic others or not. To distinguish it from the chameleon effect, we refer to this type of mimicry as ''communicative motor mimicry.''

The reasons why people mimic unconsciously are explained through an evolutionary lens. In the environment in which we evolved, it was important to rely on other members of our species to communicate to us rapidly information that was critical for survival, such as the presence of predators, prey, and potential mates. Perceiving this information quickly and then acting on it might have increased our survival chances as a species (Chartrand, Maddux, & Lakin, 2004).

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Consistent with this view, the mechanism behind the production of unconscious mimicry is postulated to be the perception-behavior link—a cognitive process whereby the mental representations used in perceiving the behaviors of others are the same as those used for initiating one's own behaviors (Piaget, 1946). Indeed, neurological evidence shows that thinking about something activates the same regions in the brain that are activated by actually doing it (Paus, Petrides, Evans, & Meyer, 1993).

A contentious issue in the literature concerns the direction of causality between mimicry and rapport. It is important to establish whether mimicry causes rapport and liking, or liking increases mimicry. A large body of research shows that when participants are mimicked by confederates, they like the confederates more (e.g., Chartrand & Bargh, 1999, Study 2). This suggests a causal path from mimicry to rapport. However, other research suggests a causal path from liking to mimicry. For instance, the fact that married couples mimic each other's facial expressions to the point where they start to look alike implies that the love between them led to mimicry. Also, the fact that infants mimic their mothers suggests that the bond between them leads to mimicry. Research has concluded that the relationship between mimicry and liking is bi-directional, with liking causing mimicry but mimicry also causing liking (Chartrand & Bargh, 1999). According to the perception-behavior link, the environment can create nonconscious behaviors through a two-stage process: (a) perception of the environment occurs automatically; and (b) this perception automatically creates behavioral tendencies through the perception-behavior link.

Definition Criteria

Behavior type. Motor mimicry only includes nonverbal (i.e., gestures, postures) and vocal (i.e., accents, speech rate) behaviors. Mimicry involves producing identical behaviors as someone else (e.g., foot-shaking or face-rubbing), and the unit of analysis for measuring mimicry is individual behaviors.

Mechanism. Motor mimicry can occur both consciously and unconsciously. Conscious mimicry that is the result of empathetic experiences, as when one deliberately winces at someone else's pain in order to demonstrate interpersonal support, has been labeled communicative motor mimicry. The vast majority of mimicking behaviors, however, are unconscious and do not require perspective taking, as those described by the chameleon effect.

Communicative motor mimicry is driven by a goal to establish liking and rapport with communication partners. Unconscious motor mimicry as described by the chameleon-effect is not driven by any goal but rather directly activated by features of the environment. However, unconscious motor mimicry can also be goal-driven, as when people try to get others to like them.

Reception. A receiver who directly observes and properly decodes mimicry is only required in the case of communicative motor mimicry. Other types of mimicry do not call for an observer to be present.

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Effects. Whether conscious or unconscious, goal-dependent or goal-independent, all types of mimicry are postulated to increase liking and rapport. Additionally, liking one's communication partner also increases the likelihood of imitating his/her behaviors.

Linguistic Adaptation

Overview

With the growing popularity of computer-mediated communication, where interactants communicate with each other mostly through text and often in the absence of visual and auditory cues, a new line of research has started to examine adaptation at a linguistic level (i.e., the actual words used in conversation). Although only a few studies have been published in this area, there is little agreement over linguistic adaptation, with some researchers referring to it as linguistic style matching (Niederhoffer & Pennebaker, 2002), while others call it linguistic mimicry (Scissors, Gill & Gergle, 2008) or linguistic accommodation (Scissors et al., 2009).

Linguistic style matching (LSM) is defined as the extent to which the words one person uses covary with those the other person uses on both a turn-by-turn level and on the broader conversational level. This process is described as the nonconscious analog of CAT's speech convergence. LSM encompasses (a) conversation-level matching, or the extent to which one person in the dyad uses a comparable number of words and types of words (e.g., affect-related, cognition-related) as the other person; and (b) synchrony on a turn-by-turn level, which refers to the extent to which interactants use similar words on a turn-by-turn level (i.e., whether what Person A says at Time 1 influences what Person B says at Time 2).

Niederhoffer and Pennebaker (2002) note that language is by its very nature a process of coordination: Interactants need to use similar linguistic structures in order to understand each other and convey meaning. Coordination is then the building block of language. While these authors found a great degree of LSM in their data, this matching had no bearing on ratings of interaction quality, suggesting that linguistic coordination may be a necessary feature of any conversation and as such it may not have the rapport-building properties that other kinds of adaptations have.

Several mechanisms have been proposed for explaining the occurrence of LSM. As mentioned earlier, LSM is seen to reflect a fundamental property of language: that it is a joint action managed by interactants (Clark, 1996). Interactants create this joint action by coordinating at a mental representation level, and then at a syntax, semantic, and punctuation level. Another mechanism proposed by the authors is priming: Linguistic primes produced by the speaker are thought to activate the mental representations of the receiver, leading him or her to unconsciously produce similar linguistic constructs.

Scissors and colleagues (2008) conceptualize this process as linguistic accommodation, although they also use the term mimicry to describe it. The concept of accommodation is borrowed from CAT, which means that linguistic accommodation is

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seen as a strategic behavior that results in increased rapport and trust between communication partners. While the latter claim has received empirical support, the former (i.e., whether the process is strategic) was not tested in the study.

Scissors and colleagues (2009) identify three types of linguistic accommodation: (a) content similarity, when interactants discuss concepts with related meanings (e.g., "unhappy" and "sad"); (b) structural similarity, which is indicated by using the same verb tense or by verbatim repetition at a phrase level; and (c) stylistic similarity, which means using the same jargon as the partner.

Definition Criteria

Behavior type. Both LSM and linguistic accommodation involve a matching of linguistic features (i.e., vocabulary and grammar). LSM considers the production of identical words and grammatical structures between the interactants, while linguistic accommodation also considers non-identical yet similar words (e.g., "happy" and "joyful;" "sad" and "sorrow"). In terms of unit of analysis, both perspectives analyze the repetition of individual words but also of phrases and entire syntactical structures.

Mechanism. LSM is neither conscious, goal-driven, or empathy-driven but rather a fundamental and ubiquitous aspect of language use. Linguistic accommodation, however, is described as a more strategic process, driven by the goal to bond with the interaction partner (although this has not yet been directly tested). No theoretical claims have yet been made regarding the necessity for perspective taking in enacting linguistic accommodation.

Reception. By virtue of arising in conversation, both LSM and linguistic accommodation require the presence of a conversation partner, although the boundaries of conversation may be malleable. For instance, asynchronous communication contexts involve conversations, but the partners may be responding at very different points in time. In the case of LSM, it is assumed that mimicry is not consciously perceived by the receiver because it is a natural part of conversation. In the case of linguistic accommodation, it is assumed, although not currently tested, that the mimicry is noticed at an unconscious level by the receiver.

Effects. Although hypothesized to lead to increased interaction satisfaction and bonding between communicators, LSM has not been shown to have such effects in the one study where it was tested (Niederhoffer & Pennebaker, 2002). Conversely, linguistic accommodation has been shown to correlate with increased trust between communicators performing a joint task, although the direction of causality of this relationship is not yet clear.

Analysis

The goal of this manuscript was to review the literature on interpersonal adaptation in order to provide conceptual clarification over what this adaptation entails. Broadly

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defined as the modification of one's behaviors for the purpose of adjusting to one's communication partner, adaptation includes such processes as direct imitation or mimicry, synchronization of behavior, but also responding to communication partners in compensatory and situationally appropriate ways. A plurality of concepts has been advanced to describe adaptive processes in the disciplines of communication and psychology, raising the question of how to distinguish between them and how to advance theory in this area. Based on this broad literature, several key characteristics of adaptation were identified, such as the types of behaviors it encompasses (i.e., verbal, nonverbal, linguistic) and the types of effects it produces on social interactions. These key characteristics can be employed to formulate precise conceptual definitions for each adaptive process advanced in the literature (see Table 1 for a detailed description of each adaptive process based on these criteria). For instance, accommodation can be defined as the process of consciously or unconsciously imitating a partner's behavior (either verbal, nonverbal, or linguistic) for the purpose of increasing liking and rapport with the partner. Accommodating behaviors need to be perceived and correctly decoded by the partner for increased affiliation to occur.

In addition to providing detailed definitions for adaptive processes, this review paves the way for a critical analysis of the conceptualization of adaptive processes. The following theoretically meaningful questions present themselves. First, what is the usefulness of the definitional criteria outlined in this review? Are certain differences among adaptive processes fundamental and worth emphasizing? Are others less important and worth downplaying or consolidating? Second, are there any areas of overlap between the various conceptualizations of adaptive processes? If so, how can this overlap be resolved? Third, are there areas of under-theorizing in this literature, with some concepts not adequately described? If so, how can theorizing be advanced? Fourth, does the comparison of this multitude of theories on adaptation suggest areas for future research? Can theoretical development be achieved by borrowing concepts from related theories and cross-fertilizing ideas across theories and disciplines? In the following pages, each of these issues will be addressed and recommendations for theoretical advancement will be made, when appropriate.

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Usefulness of Definitional Criteria

As mentioned earlier, this review identified a series of key definitional criteria that have been proposed across theories and disciplines to characterize adaptive processes. It is important to reflect on which of these definitional criteria are fundamental in delineating across adaptive processes and which are not. One starting point in answering this question is to consider the different approaches taken by the fields of communication and psychology to the study of adaptive processes.

Communication scholars have predominantly studied the strategic, relationally driven aspects of adaptation, whereby communicators are postulated to intentionally and consciously make use of adaptive processes in order to ingratiate themselves to others. By contrast, psychologists have focused on the more automatic aspects of

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Table 1 Definition Criteria for Adaptive Processes

	Criteria								
	Behavior type			Mechanism			Reception		Effects
Concept	Modality	Likeness	Unit of analysis	Conscious awareness	Affiliation goal	Perspective taking	Receiver present	Correct decoding	Affiliation
Accommodation	☒Nonverbal ☒Linguistic ☒Vocal	☒Identical ☒Non-Identical	☒Single Behavior ☐Sequence of Behaviors	☒Yes ☒No ☐Unspecified	☒Yes ☐No ☐Unspecified	☐Yes ☒No ☐Unspecified	☒Yes ☐No ☐Unspecified	☒Yes ☐No ☐Unspecified	Accommodation ⇒ Affiliation
Reciprocity	☒Nonverbal ☐Linguistic ☒Vocal	☒Identical ☒Non-Identical	☒Single Behavior ☒Sequence of Behaviors	☐Yes ☐No ☒Unspecified	☒Yes ☐No ☐Unspecified	☐Yes ☒No ☐Unspecified	☒Yes ☐No ☐Unspecified	☒Yes ☐No ☐Unspecified	Reciprocity ⇒ Affiliation*
Interaction Rhythms	☒Nonverbal ☐Linguistic ☒Vocal	☒Identical ☐Non-Identical	☐Single Behavior ☒Sequence of Behaviors	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	Interaction Rhythms ⇒ Affiliation
Behavioral Meshing	☒Nonverbal ☐Linguistic ☒Vocal	☐Identical ☒Non-Identical	☒Single Behavior ☐Sequence of Behaviors	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	Behavioral Meshing ⇒ Affiliation
Simultaneous Behavior	☒Nonverbal ☐Linguistic ☒Vocal	☒Identical ☐Non-Identical	☒Single Behavior ☐Sequence of Behaviors	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	Simultaneous Behavior ⇒ Affiliation

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Motor Mimicry	☒Nonverbal ☐Linguistic ☒Vocal	☒Identical ☐Non-Identical	☒Single Behavior ☐Sequence of Behaviors	☒Yes ☒No ☐Unspecified	☒Yes ☒No ☐Unspecified	☒Yes ☐No ☐Unspecified	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	Motor Mimicry ⇔ Affiliation
Communicative Motor Mimicry	☒Nonverbal ☐Linguistic ☒Vocal	☒Identical ☐Non-Identical	☒Single Behavior ☐Sequence of Behaviors	☒Yes ☐No ☐Unspecified	☒Yes ☐No ☐Unspecified	☒Yes ☐No ☐Unspecified	☒Yes ☐No ☐Unspecified	☒Yes ☐No ☐Unspecified	Communicative Motor Mimicry ⇔ Affiliation
Chameleon Effect	☒Nonverbal ☐Linguistic ☒Vocal	☒Identical ☐Non-Identical	☒Single Behavior ☐Sequence of Behaviors	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	Mimicry ⇔ Affiliation
Linguistic Style Matching	☐Nonverbal ☒Linguistic ☐Vocal	☒Identical ☒Non-Identical	☒Single Behavior ☒Sequence of Behaviors	☐Yes ☒No ☐Unspecified	☐Yes ☒No ☐Unspecified	☐Yes ☐No ☒Unspecified	☒Yes ☐No ☐Unspecified	☐Yes ☒No ☐Unspecified	Linguistic Style Matching ≠ Affiliation
Linguistic Accommodation/ Mimicry	☐Nonverbal ☒Linguistic ☐Vocal	☒Identical ☒Non-Identical	☒Single Behavior ☒Sequence of Behaviors	☐Yes ☐No ☒Unspecified	☒Yes ☐No ☐Unspecified	☐Yes ☐No ☒Unspecified	☒Yes ☐No ☐Unspecified	☒Yes** ☐No ☐Unspecified	Linguistic Accommodation ≠ Affiliation

*Reciprocity can have positive or negative consequences depending on the match between the sender's and receiver's interaction position.
**Might be decoded at a non-conscious level.

adaptation, whereby adaptation is viewed as arising out of the hardwired aspects of the human brain (specifically, the perception-behavior link) and emerging unconsciously in social interactions.

Research on automaticity (see Bargh & Chartrand, 1999) suggests that the majority of human behaviors tend to be produced nonconsciously because of the limited cognitive resources available at any given point in time. Furthermore, research on infants shows that automatic mimicry is not only extremely prevalent but critical to learning and development (Meltzoff & Moore, 1983; Termine & Izard, 1988). Hence, a focus on the unconscious, automatic aspect of mimicry is certainly warranted. By the same token, research shows convincingly that a set of behaviors, perhaps a smaller one, are performed with awareness and clear intent to engender affiliation (Gallois et al., 2005).

A related issue, that also differentiates between communicative and psychological approaches, refers to the decoding of adaptive processes. Communication theories (i.e., communication accommodation, interaction synchrony) tend to postulate that adaptive behaviors need to be decoded by their intended recipient, while psychological theories (i.e., motor mimicry, synchrony) do not include this requirement. For instance, one can mimic a television character, but one cannot accommodate to a television character. Empirical research supports the idea that accommodative processes are perceived and decoded, whereas mimicry is often not even perceived, let alone decoded.

Given the clear empirical support for the distinction between strategic-automatic and decoded-not decoded aspects of adaptation, we argue that these characteristics of adaptive processes are important and merit to take a prominent role in future theorizing (as will be discussed in more detail later).

By contrast, other aspects of adaptive processes might be downplayed or reconceptualized. Specifically, the modality in which adaptive behaviors are expressed (vocal and nonverbal) has been approached in a relatively consistent manner across theoretical perspectives. Most theories propose that adaptation can occur in both the nonverbal and vocal realm (i.e., communication adaptation, interaction rhythms, motor mimicry, communicative motor mimicry) and empirical studies within the context of these theories have not found differences between nonverbal and vocal aspects of adaptation. In other words, vocal and nonverbal adaptation appears to operate similarly. Therefore, we suggest that the nonverbal and vocal aspects of adaptation can be usefully consolidated within the aforementioned theories.

However, the linguistic modality appears to be conceptually and empirically distinct from nonverbal and vocal adaptation, and we argue that the difference between linguistic, on the one hand, and vocal-nonverbal adaptation is important and merits further attention. At the empirical level, linguistic adaptation is the only type of adaptation that has not yielded the clear effects on liking and rapport that all the other types of adaptation did. An important caveat is that linguistic adaptation has received far less empirical attention than vocal and nonverbal adaptation, and hence more research is needed to fully uncover its operations and effects. However, at the conceptual level, there are indications that linguistic adaptation may in fact be

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different than other types of adaptation, or may not constitute adaptation at all. Psycholinguist Herbert Clark (1996) argued that language is by definition a joint action, meaning that mutual understanding and cooperation are the sine qua non of language. In other words, without mutual adaptation, language does not function properly. Linguistic adaptation needs to be present in every social interaction and hence does not necessarily lead to affiliation and rapport.

Given that coordination is intrinsic to language use, it is necessary to consider whether linguistic adaptation does in fact belong with the other adaptive processes. We argue that it does, but only if it is more precisely defined. As explained by Scissors and colleagues (2008, 2009), linguistic adaptation can be manifested at a word-by-word level, whereby interactants repeat partners' word choices, and at a broader structural level, whereby grammar is used similarly by interactants. We propose that grammatical entrainment is the necessary, inevitable aspect of language. Conversely, individual words can be purposefully (or unconsciously) repeated for the sake of eliciting liking and rapport. Hence, we suggest that linguistic adaptation can be termed linguistic accommodation and treated as part of communication accommodation theory if it is done consciously and purposefully, and termed linguistic mimicry and treated as part of the chameleon effect if it is done unconsciously and leads to liking and affiliation.

One final issue that needs to be considered is the *form* of adaptive behaviors. Many theories view imitation, or matching, as fundamental to adaptation, in the sense that adaptive behaviors are, by definition, viewed as a direct imitation of a partner's behaviors (e.g., shaking one's foot when the partner does so, adopting a partner's accent, slowing one's speech rate to match a partner's). The main exceptions lie with interaction adaptation theory, which defines adaptation as responding in appropriate ways to a partner, and communication accommodation theory, which defines adaptation primarily as matching but also includes non-matching types of behaviors, such as asking clarifying questions. We argue that the distinction between matching and non-matching types of adaptive behaviors is critical and merits more attention in the literature. Non-matching adaptation cannot occur through the same cognitive mechanism as matching adaptation (i.e., the perception-behavior link), and it is likely to be produced strategically in order to make the partner feel comfortable. Hence, non-matching adaptation operates differently from matching adaptation, and needs to be examined separately.

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Theoretical Overlap

As discussed earlier, existing theories tend to focus on distinct and meaningful aspects of adaptation. However, several overlapping conceptualizations are also noticeable. By taking a broad theoretical view to the various conceptualizations of adaptation, we propose how this overlap might be resolved.

First, accommodation and communicative motor mimicry share many similarities. Both are used consciously and strategically to signal rapport between communicators, and both serve an overarching communicative function. The main differences

between them are that (a) accommodation is thought to occur at both nonverbal and vocal levels, whereas communicative motor mimicry is described as occurring exclusively in the nonverbal domain; and (b) communicative motor mimicry operates through the mechanism of perspective taking. As argued earlier, we suggest that there is conceptual equivalence between vocal and nonverbal adaptation. Furthermore, the necessity of perspective taking in adaptive processes has not received clear empirical support (Chartrand, Maddux, & Lakin, 2004). As a result, we argue that the differences between accommodation and communicative motor mimicry are less meaningful than the similarities between them. We propose that communicative mimicry be reconceptualized as accommodation, and that future studies more closely examine the role of perspective taking in accommodative processes. This issue is particularly important in light of the potentially ambiguous nature of the terminology "mimicry" in the context of communicative motor mimicry. Recall that, in the psychology literature, mimicry has been treated as an unconscious and automatic process; conversely, communicative motor mimicry is a strategic, intentionally affiliative process—the opposite of traditional mimicry. For conceptual clarity, we recommend that the term "mimicry" not be used to refer to strategic processes, an issue that will be discussed in more detail later.

Second, simultaneous behaviors, a subtype of interactional synchrony, are conceptualized in a similar way as unconscious motor mimicry (i.e., the chameleon effect). Both processes are automatic, non-strategic, and involve directly matching an interlocutor's single behavior (unlike other synchronous processes, where sequences of behaviors are matched). We propose that interactional synchrony retain its characteristic dimension—the tackling of sequences of behaviors, whereas simultaneous behaviors be treated as part of the chameleon effect.

Finally and relatedly, the chameleon effect and motor mimicry are highly similar. Both are psychological approaches that encompass vocal and nonverbal behaviors, do not require the presence of a partner or of decoding, and lead to increased affiliation and rapport. The chameleon effect is a more narrow type of motor mimicry that occurs purely unconsciously, whereby motor mimicry also includes conscious mimicry (usually described in the literature as confederates purposefully mimicking participants for the sake of eliciting rapport). We propose two adjustments to clarify this literature. First, the chameleon effect and motor mimicry should be merged and defined strictly as nonconscious, nonstrategic behaviors. Second, strategic mimicry should be re-conceptualized as accommodation. By borrowing a terminology from the cognate field of communication, this literature on motor mimicry can be greatly clarified and the division between strategic and non-strategic accommodation neatly preserved.

Under-Theorizing

Under-theorizing occurs when certain theories do not clearly specify definitional criteria for their adaptive processes. According to this review, one major instance of under-theorizing emerges the issue of strategy, as conceptualized by communication-based

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approaches to interpersonal adaptation. Adaptation can be strategic in the sense that adaptive behaviors (e.g., imitating accents or others' body gestures) are consciously and intentionally enacted, or adaptation can be strategic in the sense that the affiliative goal is conscious and deliberate (i.e., I want to get you to like me), but the behaviors that stem from this goal (e.g., imitating the partners' gestures) are not consciously performed. This nuance is currently missing from conceptualizations of communication accommodation and interaction adaptation theory. In the psychology literature on motor mimicry, conscious awareness and affiliation goals are frequently manipulated, with confederates being told specifically to try to ingratiate themselves to their partners by mimicking their behaviors (e.g., van Baaren, Holland, Kawakami, & van Knippenberg, 2004), yet conscious goal activation is not currently stated as a precondition of motor mimicry. We make the following propositions to advance the literature. Having a conscious affiliation goal is a critical dimension of communication theories (i.e., communication accommodation and interaction adaptation) and should be clearly stated as such. For clarity, psychological theories (i.e., motor mimicry and the chameleon effect) should refer to processes that do *not* stem from a conscious affiliation goal. The current psychological literature does in fact follow this pattern, with the exception of employing confederates to elicit liking through mimicry (see van Baaren et al., 2004). We suggest that whenever the latter procedure is employed, mimicry is referred to as accommodation.

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Future Research and Theoretical Integration

By examining the variegated perspectives on interpersonal adaptation formulated across theories and disciplines, this review can suggest areas of integration, or how to use one theory to inform others for the greater good of achieving a more sophisticated understanding of adaptive processes. One such area of integration refers to the mechanism responsible for the production of adaptive behaviors. Communication theories excel at explaining the circumstances under which adaptive behaviors are strategically performed. For instance, strategic adaptation is postulated to occur when people have a desire for social inclusion and approval (according to communication accommodation theory) or in such a way that communicators' requirements, expectations and desires are met in an interaction (according to interaction adaptation theory). Conversely, psychological perspectives are better at explaining the mechanism responsible for nonconscious adaptation, such as the perception-behavior link, and the evolutionary roots of adaptation. Taken together, communication and psychological perspectives provide different lenses for understanding when, why, and how interpersonal adaptation occurs and provide a more holistic view on adaptive processes.

Further theoretical integration could be achieved by borrowing concepts from one theory and applying them to another. In the following paragraphs, we delineate such possibilities for integration. Since there is currently no data or theorizing on these issues, we invite future research to test them empirically.

First, communication theories do not postulate a cognitive mechanism for the production of adaptive behaviors, yet psychological theories do. We argue that it is plausible that the same cognitive mechanism (i.e., the perception-behavior link)

could be responsible, at least partially, for the production of both strategic and non-strategic adaptive behaviors. This question merits empirical testing.

Second, the communication literature focuses on strategic adaptation, whereas the psychology literature focuses on nonconscious, non-strategic adaptation. Both have shown that these adaptations lead to increased liking and rapport between interactants. However, to date, no research has compared the intensity and quality of this rapport in these two cases. Does strategic adaptation work better in engendering liking and rapport than its non-strategic counterpart?

Third, both the communication and psychology literatures analyze adaptation at the individual behavior level (i.e., responding to a smile with a smile). Does adaptation have a cumulative effect, such that the more behaviors we adapt, the more we foster liking and rapport?

Fourth, the psychology literature tends to ignore the reactions of the person being mimicked, in contrast to the communication literature, which claims that a proper decoding of the adaptive behaviors by their intended recipient is essential. What are the effects of decoding versus not decoding mimicry on interpersonal rapport and liking? Does a person who detects mimicry like her partner as much as someone who doesn't consciously decode it?

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Conclusion

This article provides a systematic review of the most prominent theories on interpersonal adaptation, in view of (a) clarifying the nature of the various processes that have been described as "adaptive" (e.g., accommodation, mimicry, synchrony), (b) identifying areas of overlap and under-theorizing in the literature, and (c) proposing avenues for future research that bridge the existing theories. This review shows that the multidisciplinary body of work on interpersonal adaptation is rich and complex. Subsequently, the review offers a host of solutions for resolving conceptual confusion through consolidating existing concepts, and delineates exciting research questions that can move theorizing in this area even further.

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