HANDBOOK OF PRAGMATICS

22nd ANNUAL INSTALLMENT

EDITED BY
JAN-OLA ÖSTMAN
JEF VERSCHUEREN

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22nd Annual Installment

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Edited by

Jan-Ola Östman
IPrA & University of Helsinki

Jef Verschueren
IPrA & University of Antwerp

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Editors' note

This year's Annual Installment of the *Handbook of Pragmatics*, the 22nd edition, brings you three articles by prominent practitioners on currently important research traditions relevant for the field of linguistic pragmatics: on gesture research (Jürgen Streeck), social media research (Brook Bolander), and translanguaging pedagogy (Anne Holmen). In addition, classical and challenging pragmatic topics are dealt with: event representation (Bracha Nir), evidentiality (Seppo Kittilä), the broadened notion of factivity under the label 'lexically triggered veridicality inferences' (Aaron Steven White), and pragmemes (Keith Allan). In this year's edition, moreover, two themes which tend to be studied from varying and often opposing perspectives are represented by authors approaching them differently. First, issues related to literacy (about which the Handbook already contains an older article by Jenny Cook Gumperz) are presented from the point of view of orthography and its relation to cognition (Dominiek Sandra) and the anthropological pragmatics of scripts (Nishaant Choksi). Second, the hotly debated issue of how to cope with linguistic diversity is approached pedagogically (in the already mentioned translanguaging pedagogy paper by Anne Holmen) but also theoretically in an article contrasting the notions of code-switching (about which there is also an earlier article by Peter Auer & Carol Eastman) and translanguaging (Rakesh Bhatt & Agnes Bolonyai), and another one introducing the concept of transience (Hartmut Haberland & Janus Mortensen). Finally, adding to a consistent attempt to highlight non-western notions of language use and communication, this installment also contains an article on the Persian notion of *ta'ārof* (William Beeman).

For readers less familiar with the Handbook, a few words about its history and development may be useful.

When we launched the idea of a ***Handbook of Pragmatics*** under the auspices of the **International Pragmatics Association** (IPrA; https://pragmatics.international) in the early 1990s, we wanted to create a format that would be indefinitely moldable for and by the readership. The very essence of scientific research is that scientific insights change constantly. In a field like pragmatics, with the functioning and use of constantly changing styles and registers of language as its focus of research, we did not want to produce a single book as the ultimate 'handbook of pragmatics.' Since we saw this venture as a task that would take decades, if we wanted to do it properly, we also did not want to start with categories and traditions beginning with "A" and after a couple of decades finally reaching "Z".

At that time, we settled for a loose-leaf publication format, relatively unorthodox in the humanities and social sciences. The idea was that this would enable us to gradually build up a changeable and expandable knowledge base for the users of the

Handbook. Moreover, each individual reader would be able to group and re-group the entries according to his or her own preferences and particular interests, which no doubt would themselves be changing over time. So, with every three or four annual installment of the Handbook, the subscriber received a new ring binder in which to collect and order the new entries. The series of loose-leaf installments was preceded in 1995 with a hardback bound **Manual** which provided background information on a wide range of traditions and research methods underlying much of the pragmatic research described in the more topical entries of the annual installments. Needless to say that also this background information has evolved and has necessitated numerous new entries on traditions and methods in the loose-leaf installments. So far we have published 21 installments of some 300 pages each, in addition to the 658-page Manual. Subscribers to the loose-leaf version of the *Handbook of Pragmatics* should by now have a bookshelf filled with Manual plus 7 ring binders, reflecting the state of the art in the science of language use.

Meanwhile, the world has gradually become more and more digital. In the early 1990s hardly anyone could have foreseen the radical changes that have come to take place on the publishing scene. The *Handbook of Pragmatics* quickly followed suite, went online, and is available for readers as, precisely, the *Handbook of Pragmatics Online* (https://benjamins.com/online/hop/). The online version has been continuously updated with new material whenever and as soon as a new installment of the Handbook was published; and in cases where an entry has been totally rewritten, the older version has been retained in the Archive – all in the interest of giving readers a feeling of how the discipline itself has changed and evolved over the decades.

It is also the case that the online version has become the most often used version of the Handbook, both by individual scholars (especially by members of the International Pragmatics Association), and by many of their institutions and universities. The loose-leaf version on paper is nowadays seldom subscribed to by individuals, but we are happy to say that it does attract libraries and research groups. It is, however, challenging for libraries to make loose-leaf versions of books available for the general readership in a shape where all leaves/pages are physically "a-loose".

Faced with this situation, we decided in close discussions with John Benjamins Publishing Company to produce further installments of the ***Handbook of Pragmatics*** in the form of bound publications, of which the one you are now holding in your hands is the second volume. One consequence of this change was that there was no installment in 2017. The annual regularity has meanwhile been restored from 2018 onwards. We are convinced that this makes the Handbook easier to handle and more attractive not only for libraries, but also for scholars who still cherish the feel and satisfaction of reading a concrete book. Meanwhile, the online version continues to integrate all additions and changes.

The gist of the User's Guide for the *Handbook of Pragmatics* and its online version largely remain the same as before – see below. As in the loose-leaf version, we have a cumulative index (at the end of each volume), covering not only the present installment, but linking it to the entire *Handbook of Pragmatics*.

Acknowledgments

A project of this type cannot be successfully started, let alone completed, without the help of dozens, or even hundreds, of scholars. First of all, there are the authors themselves, who sometimes have had to work under extreme conditions of time pressure. Further, most members of the IPrA Consultation Board have occasionally, and some repeatedly, been called upon to review contributions. Innumerable scholars could have been added, whose input was essential for authors of the individual contributions; for reasons of space, we decided to take out most of the acknowledgments appended to the articles.

Last but not least, the present editors want to make sure that the contribution made by the co-editors of the Manual and the first eight annual installments, is not forgotten: Jan Blommaert and Chris Bulcaen were central to the realization of the project. Similarly, Eline Versluys acted as editorial assistant for a five-year period ending in 2009. Our sincerest thanks to all of them.

We hope the 22nd installment of the Handbook will serve your needs and inspire your future work.

Uppsala & Antwerp, September 2019.
Jan-Ola Östman & Jef Verschueren, editors

User's guide

Introduction

For the purpose of this publication, ***pragmatics*** can be briefly defined as *the cognitive, social, and cultural study of language and communication*. What this means exactly, and what it entails for the scientific status of linguistic pragmatics, was explained in detail in the introductory chapter, 'The pragmatic perspective' by Jef Verschueren, of the **Manual** (*Handbook of Pragmatics: Manual*, edited by Jef Verschueren, Jan-Ola Östman & Jan Blommaert, 1995).

The overall purpose of the **Handbook of Pragmatics** is that it should function as a tool in the search for *coherence*, in the sense of cross-disciplinary intelligibility, in this necessarily interdisciplinary field of scholarship. The background of the Handbook and its historical link with the International Pragmatics Association (IPrA), as well as its basic options, were described in the preface to the Manual. The Handbook format, although described in the same preface, will be presented anew in this **User's Guide** for the sake of clarity.

The **Handbook of Pragmatics** will continue to be available ***online*** (see https://benjamins.com/online/hop). The printed version will continue to be expanded with *new articles* and will also incorporate *revised versions* of older entries. *Updates* that require minimal changes will be published only in the annual online releases. In addition, ***Highlights*** from the Handbook have been published in ten thematically organized paperbacks (in 2009, 2010, and 2011; cf. https://benjamins.com/catalog/hoph), making the contents accessible in an affordable way for use as practical teaching tools and reading materials for a wide range of pragmatics-related linguistics courses focusing specifically on general pragmatic, philosophical, cognitive, grammatical, social, cultural, variational, interactive, applied, or discursive aspects, respectively.

The handbook format

The printed edition of the **Handbook of Pragmatics** contains three clearly distinct parts: the *Manual*, the *Handbook* proper, and the *Cumulative index*.

In addition to a preface and a general introduction, the ***Manual*** gathers basic instrumental information that the authors and readers of all the articles and entries in the Handbook proper should be able to rely on, thus eliminating repetitions and extensive digressions. The following three areas are dealt with in the Manual:

i. The major *traditions* or approaches in, relevant to, or underlying pragmatics, either as a specific linguistic enterprise or as a scientific endeavor in general. The articles in this section give an overview of the traditions and approaches in question, with historical background information and a description of present and potential interactions with other traditions or approaches and the field of pragmatics as a whole.
ii. The major *methods of research* used or usable in pragmatics or pragmatics-related traditions.
iii. Different kinds of *notational systems*, including the most widespread transcription systems.

Obviously, these areas are closely interrelated and cannot be separated for any other than presentational purposes.

Even though methods change and traditions get reinterpreted constantly, the topics dealt with in the main body of the Handbook find a relatively stable frame of reference in the Manual; hence the bound format of the Manual. Yet, already at the time of its publication we were aware of a number of gaps which we are constantly – due to the changing field itself – trying to fill systematically. Therefore, the Installments of the Handbook over the years have also contained loose-leaf sections labeled in accordance with the three sections of the Manual: *Traditions*, *Methods*, and *Notational systems*. Articles in these sections were marked (in the upper right corner of the title page) '*TRADITIONS update*', etc. In the volumes that are to be published in bound format in the future, there will be separate TRADITIONS (etc.) sections whenever relevant, in addition to an alphabetically organized topical HANDBOOK A-Z section.

The main body of the ***Handbook*** consists of articles of various sizes, organized around entry-like key-words, alphabetically presented. They range in generality: some provide a general overview of a particular field (which cannot be captured under the label of a 'tradition'; see above), others discuss a specific topic in quite some detail. They present a state-of-the-art overview of what has been done on the topic. Where necessary, they also mention what has not been dealt with extensively (e.g. acquisitional and diachronic aspects), thus suggesting topics for further research. Important research in progress is mentioned where appropriate. In addition, some references to major works are given; these reference lists are kept reasonably restricted because of space limitations.

A different type of article in the body of the Handbook is devoted to the contributions made by an individual influential scholar and may contain interesting biographical information as well.

The Handbook attempts to document pragmatics dynamically. Consequently, a *loose-leaf* publication format was initially chosen for maximum flexibility and expandability (see the Editors' Note above) – properties that are even more characteristic

of the **Handbook of Pragmatics *online***, which has therefore taken over that specific functionality to the point of rendering the loose-leaf printed format superfluous and replaceable by bound annual installments. By definition, there is no point in time when it is possible to say that the main body of the Handbook will be complete, though a reasonably comprehensive overview could be said to have been obtained after the eighth annual installment published in 2002, so that from then onwards, in addition to further *expansion*, there have been regular *revisions* and (in the online version) *updates* of older contributions. In the case of articles that are being replaced completely, the older versions are kept in the Archive section of the online version.

Even though we are now giving up paper publication in loose-leaf format, the very idea of continuous flexibility and expandability is retained. Being a vibrant field, pragmatics sees new openings and coherent subfields emerging constantly. Thus, every annual installment of the **Handbook of Pragmatics** will naturally also contain entries on such new directions of research.

About the cumulative index

At the end of each printed annual installment of the *Handbook of Pragmatics*, you will find a complete index, with all necessary cross-references to ensure easy access to the available information (which continuously accumulates over the years). The index thus does not only contain references to concepts and matters to be found in the annual installment at hand, but cross-references to all Handbook entries that have appeared in the *Handbook of Pragmatics*. Needless to say, this cumulative index is also continuously updated in the online version of the Handbook, where it also contains direct links to relevant articles.

In addition to references to specific handbook entries, the index also contains lists of terms which are not used as entry headings but which do occur as alternative labels in the literature, with an indication of where exactly the topics in question are treated in the Handbook.

Traditions

Gesture research

Jürgen Streeck
The University of Texas at Austin

1. Introduction

Research on hand gestures[1] and their roles in social interaction and cognition has fairly exploded in the last two decades. A non-entity to most linguists during the 20th century (among the exceptions: Sapir 1991; Pike 1967), the advent of video technology enabled psychologists, beginning with David McNeill (1985), to investigate what gestures reveal about thought processes or 'thinking-for-speaking' (Slobin 1987), and interaction researchers to examine in detail how gestures are coordinated with speech and what functions they serve in everyday communication in the material world. This account of gesture studies is shaped by a pragmatic or praxeological perspective (Streeck 2013, 2017a) which sees gestures as a diverse and evolving set of embodied communicative practices.

After a cursory review of relevant stages in the history of gesture scholarship, I discuss three core modes of gesturing: indexical (environmentally coupled), depictive, and conceptual gestures, the latter including 'pragmatic' gestures, that is, gestures that embody aspects of the process of talking and interacting. At the same time, I lay out fundamental differences between the representationalist (neo-Cartesian) paradigm of cognitive psychology and cognitive linguistics and an 'enactive' (Meyer, Streeck & Jordan 2017), praxis-oriented approach which approaches gesture as corporeal actions and with a view towards its relationships with other corporeal actions in the material world.

2. The attraction of gestures

Considered subservient to, if not disruptive of, speech – and sometimes, for example during the European Middle Ages (Schmitt 1991), taken as a sign of the devious

1. This chapter deals exclusively with hand gestures, not facial gestures or ritual acts such as gift-giving that everyday language also calls 'gestures'.

https://doi.org/10.1075/hop.22.ges1

character of a people – gesture only rarely attracted the attention of scholars in the West.[2] When it did, scholars would find in them something common to all humanity – 'the common language of all humans' (Quintilianus 1922) – and clues to our cultural ancestry and evolution. Gestures were prominent objects of debate during the periods of the Roman republic; the Middle Ages and Renaissance; the Enlightenment; and the 19th century. They have been receiving renewed and massive attention again since the 1990s.

During the Roman Republic, rhetoricians such as Quintilian acted as communication consultants to orators and politicians, and *actio* (delivery) was considered key to making public speaking persuasive and credible. The chapter on *actio* in Quintilian's *Institutio Oratoria* (published in 100) is the first empirical study of hand gestures and remained for nearly two millennia the gold standard for precision in the study of the coordination of gesture and speech. Only Birdwhistell's (1970, 1979) studies of American movement, conducted in the early 1950s, eventually surpassed the granularity of the Roman rhetorician's observations. Quintilian's ultimate concern was to teach credible delivery, but in his descriptions of what he considered failures – miscoordinations between gesture and speech –, he focused on temporal coordinations between body motions and syntactic and illocutionary units of speech in a fashion that resembles contemporary research on multimodal communication. For example, he wrote that, if a lateral hand movement that begins far left is to convey an image of harmony and balance by ending at an equivalent point on the right, then speech and hand must move at the right relative pace, phrase by phrase.

Gesture does its supportive work in two ways: by giving visible form to linguistic structure and by conveying the illocutionary forces of utterance acts. Quintilian abhorred iconic gestures and pantomime – corporeal pictures of reality – which belong on the stage, not the rostrum of the speaker. The autonomy and exclusive reign of spoken language as a medium of persuasive debate required a sharp separation from theatrical practice, the dramatic re-staging of reality. Quintilian's normative gesture code was a strictly pragmatic one: he laid out how motions of the hand, if properly timed in relation to speech, can exhibit its syntactic and argumentative structure, mark off subject and predicate, broadcast its emotional tone, and embody the rhetorical act that is being performed. Quintilian identified various gestures suitable to be performed at certain points during the delivery of various certain illocutionary acts. Some of these quasi-conventional gestures were shown to still be in use in the 1960s in the places in Italy where Quintilian and his contemporaries had witnessed them (Morris et al. 1979). Even in today's political debates in Western democracies

2. Other traditions of gesture and gesture scholarship, notably those of India, are not included here; see Rahaim 2012.

a Quintilian-type code appears whose gestures are pragmatic and conceptual, rarely depictive (Streeck 2008). In ancient Rome, some pragmatic gestures were also used as icons of status and rank on artifacts such as coins, vessels, and sculptures (Sittl 1890, Brilliant 1963).

After the demise of the Roman empire, during the first millennium of the Christian remaking of European cultures, gestures continued to be an important vehicle of communication in the context of the Mass, whose spoken text was delivered in Latin and thus unintelligible to the masses (Schmitt 1991). Greek- and Roman-style rhetorical debates continued within the scholastic tradition.

For those who are interested in the history of research on hand gestures as a vehicle of everyday communication, the next period of interest is the Renaissance, but the interesting development occurred in the arts. Painters, initially confined to the painting of a single gesture – the *benedictio* (or sign of the cross), performed by Christ – liberated this gesture, and thus the hand, from the theological constraints that had governed its representation. For centuries, after the Church had declared pictures of the human form blasphemous, the only image of body motion audiences ever encountered, unlike their Greek and Roman predecessors, was the hand of the Christ child frozen just before it begins to make the downward motion of the sign of the cross. Christ is thus shown blessing the viewer, and viewing the picture meant receiving a blessing. But from a visualized illocution, the hand in the act of benediction gradually transformed into a versatile tool to show speaking and address. The gesture of benediction led the way to an increasingly painstaking painterly analysis of interpersonal interaction and social life (Baxandall 1972; Gombrich 1982).

In the work of the 14th century painter Giotto, the gesture of benediction is reanalyzed as a universal speaking gesture (Barash 1987). It embodies the word of God on canvas, but it also shows who is talking to whom, who is speaker and who is being addressed. When another person is included, she is often shown making a return gesture, completing a two-part sequence, for example 'delivery of news – acceptance'. A frequent theme of Renaissance painting is the *Annunciation*, a scene in which the archangel Gabriel announces to the Virgin Mary that she will give birth to the son of God. Mary is shown bowing, covering her hands and thus not gesturing (and speaking) in return, but accepting the news in silent humility. Gabriel has extended his arm and index and middle fingers in what was the benediction, but is now a generic speaking gesture (Barash 1987). At the same time, the standard posture configuration from the blessing icons, in which Christ is seated on, or held above, Mary's lap, both staring at the viewer, is reconfigured as a moment in family interaction: Joseph is added as onlooker or admirer, and John, Jesus' older playmate, adds distraction and complexity. Rafael produced an endless series of paintings in which Jesus is distracted by John. Because the spoken word cannot be painted and because the analysis of light and shades had not progressed to the point where emotions in the face could

be rendered, Renaissance painters developed an elaborate vocabulary of hand gestures by which states and moments of discourse could be shown. Nearly all of these gestures are of the pragmatic type. What is particularly interesting to interaction researchers is that paintings often present gestures in dialogical (sequential) juxta-position, showing both the initiating and the responsive act. This narrative device requires the precise observation of *emerging* embodied interaction to be credible. Renaissance painters thus formed one of the most accomplished school of interaction research in history. The high point of their mode of analysis was reached with Leonardo's *Last* Supper, in which each of the twelve apostles makes a separate gesture with each hand, one responding to the moment just passed – a 'second position gesture' –, the other making a new move, initiating a new sequence with another co-participant. The entire painting, when viewed from left to right, shows the progression of the moment from the disclosure to the Eucharist, minutes pressed into a seeming snapshot of thirteen people's gestures (Steinberg 2001; see Streeck 2003).

The most fruitful period of scholarly inquiry into and debate about gesture was the Enlightenment (Aarsleff 1974), exemplified by the Friday lunches of Benoit de Condillac, Denis Diderot, and Jean-Jacques Rousseau (Blom 2010), during which they discussed the role of gesture in the self-making of humankind, in its transition from nature to culture. In his *Essay on the Origin of Human Knowledge*, Condillac (1746) imagined a scenario of the evolution of language in which gestures form a bridge between practical action and creaturely *cries de passion* on one side and spoken language on the other. Gesture is a *langage d'action*, a language of physical actions in which acts such as reaching for something constitute primordial acts of communication. These acts become signs as they take on a life of their own as pure forms, actions in the air, imbued with passion. That they can live on their own, without spoken language, is evidenced by the signs of the deaf. Condillac's ideas do not seem far-fetched in light of today's accumulated knowledge about *mimetic culture* (Donald 1991), but more importantly, they generated a great deal of interest in gesture and sign languages which turned into serious and empirical inquiry during the 19th century (Lane 1976).

Condillac's ideas incited the first serious analysis (and codification) of a sign language of the Deaf by Sicard, and it inspired the first (unrealized) project of the *Société pour l'Observation de l'Homme*, founded in Paris in 1800, namely to send out expeditions with the task of collecting specimens of all the manual sign languages in use in the world so as to find traces of our common ancestral language. Even the founder of modern anthropology, E. Tylor (1856), saw in the signs in use at the Berlin School for the Deaf 'survivals' from the early stages of the evolution of human culture. In Italy, de Jorio (2000 (1832)) conducted both ethnographic and 'archeological' research, relating the gestures communally used at the time in Naples to those documented during the time of the ancient Roman republic and empire (Kendon 1995). In the United

States, the Army sergeant Mallery documented the gestural lingua franca of Plains Indians (Mallery 1978 (1880)) and explicated the chains of metaphor and metonymy by which the signs appeared to have acquired their meaning. The work of both in turn informed Wilhelm Wundt's views of gesture and the origin of language (Wundt 1975 (1911)) and informed his theory of 'psycho-physical parallelism' between ideas and their bodily expression.

The latter part of the 19th century saw the rise of Social Darwinism and thus White supremacy, and cultural evolution was construed as a biological process in which the mind or mentality of a human 'race' advances from a primitive to a savage to a civilized stage. It was mainly Franz Boas who, responding both to the Eugenics movement in his new homeland, the U.S., and the racist ideology in his native Germany, took the veil of science from the Nazi 'anthropologist' who argued the racial character of patterns of social behavior (Boas 1932). He demonstrated that culture is learned, not hereditary and he demonstrated that it is impossible to show the superiority or greater advance of one culture as compared to another: there is no standard of cultural comparison that is not itself culture-dependent.

3. Contemporary research on gesture

Boas' account of behavior as a product of cultural learning rather than heredity informed the first modern scientific study of everyday conversational gestures. In the late 1930s, David Efron, Boas' doctoral student, observed and recorded hundreds of hand gestures made by Jewish and Italian immigrants in New York City (Efron 1972). Enlisting the help of artists and employing multiple methodologies (drawing, diagraming, counting, and statistics), he produced a plethora of findings about forms and uses of gesture and inaugurated methods to precisely describe what we would now call 'etic and emic' differences between cultural styles. Importantly, by demonstrating that second-generation immigrant gesturers show hybridization with forms and styles common to the Anglo-American mainstream, Efron provided evidence in support of Boas' claim that behavior is a matter of cultural learning, not 'racial' heredity. Efron was years ahead of the field. Gesture research was not conducted again until Ray Birdwhistell (1970) included gesture in his structural studies of body motion (without paying attention to its unique coupling with language) and Adam Kendon (1972 and later) subjected its coordination with speech to precise scrutiny, using 16mm film and a hand-cranked projector. But precise, visually documented research on social interaction and gesture did not really take off until video technology became available to a growing pool of researchers.

Contemporary work is of two kinds, experimental and observational (naturalistic). The strongest impetus for the growth of gesture studies came from the cognitive

psycholinguist David McNeill and was amplified by his colleague S. Goldin-Meadow at the University of Chicago (Goldin-Meadow 2003). In 1979 McNeill suggested that gestures exhibit the 'conceptual foundation of language' and, in his seminal article *So you think gestures are nonverbal?*(1985), demonstrated that hand gestures are intimately tied to the production of speech, in other words, 'verbal'. Rather than subsuming gestures under an all-encompassing behavioral category 'body language' or 'nonverbal communication', McNeill demonstrated that the production of gestures is connected to the production of speech to a degree that other modes of embodied communication are not. He posited that gesture and speech constitute components of a single psychological system, but open up different windows onto the underlying thought processes of the speaker: while verbal utterances are filtered through grammatical systems and offer linear or analytic encodings of mental imagery, gestures are 'synthetic' and are able to combine multiple semantic components in a single output. Speech and gesture thus complement one another while being co-indicative of the same mental representations and processes. McNeill also suggested that gesture is not connected to, or derived from, practical action: instrumental and communicative actions are in his view controlled by different structures in the brain (McNeill, Gallagher & Cole 2005). Other psychologists do not share this view (Kita, Alibali & Minguyan 2017). Because of his interest in gesture as a 'window onto thought', McNeill (1992) focused on those forms of gesture that are neither deliberately instructive (such as pointing gestures) nor conventionalized (such as the victory sign, the 'ring', or greeting gestures), but spontaneous and to some extent idiosyncratic. McNeill focused most of his research on a single experimental setting, as did many of his numerous students and followers: subjects were presented with an animated Walt Disney cartoon (*Tweedy Bird*) and filmed while they narrated the film to a confidant. The context in which gestures are produced here is thus highly constrained.

By the time McNeill first published his research, Adam Kendon (1972, 1980, 1983) had already taken the first steps of a very different path of inquiry, the observation and film/video-analysis of embodied interaction in everyday life. Kendon (1990) has called his research methodology *context analysis*, following A. Scheflen (1964, 1973), with whom he apprenticed (Kendon 1981). Crucial for context analysis were Gregory Bateson's (1972 (1956)) groundbreaking ideas that (a) meaning is a function of behavior and context; (b) contexts *frame* strips of interaction by defining the activity that is going on (e.g. as play); and (c) contexts are themselves brought about, sustained, and altered by collective ('meta-communicative') behavior.

While Kendon, inspired in part by Goffman (1963, 1971), devoted much of his earlier work to the study of movement coordination within *F-formations*, i.e. the 'postural frames' that people enter into when they engage in face-to-face conversation, he also published a paper on the coordination of gesture and speech as early as 1972 (Kendon 1972). Semantic and pragmatic relations between gestures and concurrent speech can be specified, but the quandaries and possibilities of this specification form

an important concern in Kendon's later work on gesture, as it did for many other researchers studying gestures as components of 'composite utterances' (Enfield 2009). Kendon (2004) identified a number of 'gesture families' among Southern Italian and English speakers, members of each of which are shown to perform distinct pragmatic functions, either in the structuring of discourse or the performance of illocutionary acts (see also Kendon 1995). Kendon's work, devoted to the pursuit of the question 'how visible action [becomes] utterance' (2004), encompasses a broad range of themes: the role of setting and ethnographic context in shaping local gesture styles and codes (1993); gesture's coordination and semantic and pragmatic relationships with speech (2004); its origins in practical action (2017); its role in language evolution (1991); and its elaboration into primary (deaf; 1980) and secondary (ritual; 1988) sign languages. Kendon's research comes out of a different tradition and has in part other themes, but it shares both research practices and the interest in everyday life with conversation analysis, which forms the matrix for other studies of gestural practice, by Heath (1982, 1992), Streeck (1988, Streeck & Hartge 1992), and especially C. and M. Goodwin (C. Goodwin 1986, 2003, 2007, Goodwin & Goodwin 1986).

4. Gestures' environments

Goodwin's term 'environmentally coupled gesture' raises the important question how gestural activities relate to the environment of the communication, what we can call their *ecologies* (Streeck 2009). The following distinctions must be made.

- Hand gestures can refer to (direct attention to, explicate, construe etc.) objects and events in the immediate environment, the 'world-at-hand' (Schutz 1945) or the world in sight (Streeck 2009: Chapter 4); here, the gesture directs and shapes the addressee's attention;
- hand gestures can depict worlds that are not available to the senses; when speakers move their hands to depict phenomena they are talking about, they typically direct their own and their interlocutor's attention to their gesturing hands (Streeck 1993).
- gestures that do not receive focused attention by anyone but nevertheless accompany conversational talk more than any other kind – *gesticulation* (Kendon 2004); gesticulation typically consists of single or repetitive movements which conceptualize – give manual form to – concrete or abstract content or aspects of the communication process. While these gestures, which I call *conceptual actions*, are sometimes indistinguishable from the iconic gestures of depiction, they nevertheless operate in very different ways, as I will explain below.
- gestures that perform more or less institutionalized social actions, including ritual actions; these often require another person's co-participation or a return gesture as well as a specific type of social situation or moment and include the handshake of

greeting and contractual agreement, liturgical gestures such as the *benedictio*, and the wave of distance salutation. These gestures, while being highly conventionalized, typically allow for some degree of situated variation so that individuated relationships of trust, solidarity, or co-membership may be expressed. Evidently, all of these gestures can be deemed 'pragmatic': they constitute performances of well-defined social and institutional acts.

In the following, I will give brief and selective overviews of *indexical gestures* and gestural *depiction* and then discuss *conceptual action*, including one of its varieties, *pragmatic* gestures, more extensively and in light of a handful of examples. I will not discuss ritual gestures.

5. Indexical gesture

While in the laboratory setting typical of psychological and psycholinguistic research the gesturing speaker faces an experimenter one on one, the characteristic setting of conversation analytic research, other than telephone calls, is the dinner table. Both settings – in fact, all face-to-*face* conversations – share the feature that the world that is talked and gestured about is typically not at hand. Much gestural activity, however, occurs when interaction participants are cognitively and physically (manually) engaged with the immediate environment and objects in it, which hands also handle, and arguably this is also the more fundamental mode of communication and gesturing than what goes on in face-to-*face* conversation.

Hands play many more communicative roles than those they perform in face-to-face conversation. In the *manipulatory zone* (Mead 1934), the '*world-within-reach*' (Schütz 1945), human hands directly manipulate objects, and at 'the lower limit of gesture' (Andrén 2014), they handle them in communicative, often in demonstrative or pedagogical ways. 'Interstitial' (Streeck & Kallmeyer 2001) or 'environmentally coupled gestures' include simple manipulations of objects for communicative purposes (Day & Wagner 2019), schematic actions and other annotations that expose the affordances of objects or what should be, or has been, done with them (Streeck 2017: Chapter 4); they also include what are tactile equivalents of pointing gestures, e.g., taps, nudges, and holds. While it is certainly possible to distinguish a number of broad types of practices in this domain, what is more characteristic of it is the hands' continuous adaptation to the object at hand, and thus the skilled, yet improvisational character of 'hands on' gesturing. The understanding of such gestures is often embedded in the unmediated intelligibility of practical actions in a shared life-world, which they at the same time serve to enhance: I know you understand twisting a bottle-cap; by performing a twisting action in a slightly exaggerated manner, I show you how it is done in this case. Then I may make a twisting motion an inch or two away from the

bottle, and we have a gesture and a step-by-step transition from a purely instrumental to a purely communicative form of action. Practices of manual communication in the manipulatory zone are essential in pedagogical settings, as Goodwin has shown across a number of professions (Goodwin 1994). These gestures have been neglected – and will continue to be neglected – as long as the primary speaking situation is taken to be conversation or narration where the world that the talk is about is not at hand.

More attention has been devoted to another mode of indexical gesturing, which is less about things at hand but about the world in sight, viz. pointing gestures (Kita 2003). Pointing gestures, as they are performed today, are typically co-orchestrated with spoken deictic expressions, and a number of researchers have shown how deictic gesture practices, including 'transposed' pointing to the future and past, interact with the system of deictic expressions by which the given language divides up, and orients communicators within, the universe (Enfield 2003; Haviland 1993; Levinson 2003). Gestural acts of spatial reference are guided by cultural systems of spatial cognition (for example, relative vs. absolute systems of spatial orientation require different spatial gestures when people talk about past events). Research on pointing has also explored under what circumstances which body parts are chosen (head/chin/nose, mouth, hand, index finger; Cooperrider 2012; Enfield 2001, Wilkins 2003), and shown that acts of pointing, to be successful, require a great deal of interaction work beyond the gesture itself (Goodwin 2003). The parties' sharing of a perspective or line of regard, which pointing acts aim for, comes about through sequential, multimodal interaction in which the parties pay as much attention to each other's gaze as to their hands and to the area where the target is located.

6. Depiction

When humans turn away from the surrounding world and towards one another, they occasionally *depict* with their hands what they are talking about. This is a distinct activity which is insufficiently characterized as 'iconic gesture', as it usually is. This mode of gesturing is imagistic in that it intends to enable viewers to 'see something in something' (Wollheim 1987), i.e., a talked-about object, event, or imaginary phenomenon in the motions and postures of a pair of hands. Depictive gestures do not generally function like words, as many signs do in signed languages; there are few established pairings between single gestural forms and the class of objects or events they show, although these do occur (for example, conventionalized gestures for 'drinking'). More commonly, gestural depictions are fabricated on the spot, but according to familiar, specific, and cultural-shared depiction *methods* (Streeck 2008b). Gestural depictions are often built up over a series of acts, each of which builds upon and adds imagery to the prior acts (Enfield 2004), requiring the interlocutor to retain prior gestures in short-term memory to comprehend the entire layered gestalt. Evidently, gestural depictions are deliberate productions, carefully attended to by their makers

and addressees, and often connected to the spoken utterance with deictica such as 'such a', 'this', 'like this', and so on (Streeck 2003).

7. Conceptual action

By far the most frequent form of gestural activity during conversations is what we can call *gesticulation*, the 'patter of the hands' nobody pays visual attention to and of which the gesturer only rarely becomes aware. A number of issues make research on gesticulation difficult. First, gesticulation is often extremely 'fuzzy': whereas depictive and pointing gestures are frequently carried out with great care, gesticulation, unattended as it is, produces a lot of forms that are so 'minimal' and undefined that it is difficult to even describe them or to identify a purposeful action *type* in them. Secondly, partly for this reason it is also often not clear what aspect of the discourse the gesture is about: what is being said or what is being done; does it carry semantic or pragmatic 'information'? The answer is in every case an interpretive act, a coupling, however motivated, between the enactive form of the gesture and some material, social, or virtual element of the communicative situation. As a result of this referential opacity, there is also no agreement on how to divide up this mode. McNeill (1992), for example, has separated out 'metaphoric gestures' and 'beats', but every beat gesture also has a distinct shape and beats more often than not emerge as repetitions of conceptual gestures. For our purposes, it suffices to distinguish semantic and pragmatic modes of conceptual gesturing, the latter including directive acts toward a co-participant. We must keep in mind, however, that the distinction is fuzzy and that a single gesture can relate to the talk in several ways at the same time.

8. Gesturing the search for a word: Two perspectives

The main example of a gesture that I want to discuss occurs during a word-search. We are in a conversation with the owner of an auto-shop who talks about his crazy work-days and explains his management style and his relationships with employees and customers.[3] At this point he is talking about (former) employees who benefit from paying attention to how he does things. During the second (subordinate) clause, the speaker hits trouble: he realizes that he does not have the next word. As he utters a hesitation marker ('uh'), his right hand juts forward, opens into a prehensile

3. This and the other examples described or alluded to in this chapter have been analyzed in much more detail and depth in Streeck 2002, 2017: Chapter 5, and Cuffari and Streeck 2017. Full transcripts and videos of the interactions can be viewed at jurgenstreeck.net.

posture (a 'pre-grab'), and freezes (see Figure 1); then, as he finds and utters the right word (or a fitting word), the hand closes rapidly and markedly in what we perceive as a motion of grasping, grabbing, or seizing (taking hold of) (see Figure 2). When the speaker encounters a production problem – he does not have the next word at his disposal – his right hand juts out and configures in a grasp-ready posture, a 'pre-grab'. Then, when he finds the right word, or a suitable word, his hand closes to a firm grab (Figure 2; gesture peaks are marked by dots in the transcript.)

(1) 1 in my experience they do a lot better
2 .hhh when they: • uh- (- - -) c•opy me.

Figure 1. when they: • uh-

Figure 2. c•opy me

We can quickly establish that this seizing gesture is not semantically affiliated with the phrase with which it is co-produced, 'copy me'. The gesture does not represent nor conjure copying. Thus, it must relate to the process of action, interaction, or talking, and indeed, we perceive the gesture as a display of what goes on during a word-search, when the speaker experiences a 'tip of the tongue' moment: one hopes to 'catch' the word and then one catches it. The two-phase hand-gesture, in other words, picks one significant feature of the moment of talking in interaction – that a word-search is underway – and gives it visible, enactive form. We intuitively understand why the finding of an elusive word is like catching a fly. However, as I will discuss below, the timing of this action, in particular of the first part – the readying of the hand for seizing – is clearly not *intended to* communicate this equivalence; there is nothing deliberate about the act.

The intelligibility of this gesture results not only from its meaningful pairing with a type of conversational moment, but also from its gestalt's familiarity to us; we have seen it do similar things in similar moments. In fact, seizing gestures are common across a range of contexts and can couple with the talk both semantically and pragmatically. In the following extract, recorded just a few minutes prior, the same speaker makes four seizing gestures which, in their contexts, we perceive as acts of taking possession or, thereby, as displays of achievement.

(2)
1 A Because **I** fee:l
2 when the customer come to me and I'm behind the counter
3 I make s**e**nse when I talk with the people
[
4 B Right.
5 A Not because my language
6 my language it is the la:st one I have
7 If I have good (- - - -) vocab•**u**lary
8 and I have good •experience
(- -)
9 to spea:k
(- -)
10 as (-) people they study in school
11 to better than my knowledge
12 If I ha:d tha:t I will make more money but
13 (- -) with this (- -) •information
14 I make sense •when I talk with my customer.
15 Because **I** fee:l
16 when the customer come to me and I'm behind the counter
17 I make s**e**nse when I talk with the people
[
18 B Right.
12 A Not because my language
13 my language it is the la:st one I have

14 If I have good (- - - -) vocab•**u**lary
15 and I have good •experience
(- -)
16 to spea:k
(- -)
17 as (-) people they study in school
18 to better than my knowledge
19 If I ha:d tha:t I will make more money but
20 (- -) with this (- -) •information
21 I make sense •when I talk with my customer.

We need to decide what unit of talk we assume the gesture to be associated with. The first three installments are coupled with the words 'vocabulary', 'experiences', and 'information', but again there appears to be no meaningful connection between these words and the gestalt of the gesture. Instead the three installments are coupled with 'have vocabulary', 'have experience', and 'with this information', which can be translated as 'in possession of this information'. We intuitively understand the connection between the gesture and these phrases: seizing something, taking hold of it, is a primordial way of taking possession. The fourth installment is coupled with the phrase 'make sense', which describes an achievement, and here the gesture seems to convey a more generalized sense of achievement: grabbing something can be seen as a metonymy of achievement. The gesture seems to pick out that particular significance. It appears that this gesture habitually conveys a sense of possession or of taking possession, which is one concrete type of achievement.[4] Clearly, these are 'pre-fabricated' or sedimented gestures, in two senses: they are recurrently and sometimes repetitively enacted by a person, but they are not sediments of his own enactive experiences in the world; he has acquired them by imitation and repetition from people with which he has interacted. Gestures that display aspects of the process of talking in interaction – pragmatic gestures – show more pre-fabricated or sedimented ('conventional') forms than those that conceptualize aspects of the talk's content.

9. Pragmatics

Pragmatic gestures (Bressem & Müller 2014) have also been called 'metacommunicative', 'rhetorical', 'interactive' (Bavelas et al. 1992), 'discursive', 'discourse-management' and 'performative' gestures. Unfortunately for the analyst, interaction participants

4. I am not suggesting that recipients perform a series of inferences – or any inference at all – when they see the gesture in order to figure out how it relates to the spoken words; they simply see a familiar action as they make sense of what is being said – they perceive a multimodal gestalt.

rarely produce behavior that reveals the sense they make of a gesture – as opposed to the entire utterance 'package' –, and thus the 'next-turn proof procedure' (Sacks, Schegloff & Jefferson 1974) that talk entails (participants show in their next turn the sense they make of the prior turn) cannot be specified for gesture. Accordingly, there are only few studies that show how gestures contribute to the moment-by-moment production of understanding in conversational interaction (Goodwin 1986; Goodwin & Goodwin 1986; Heath 1982, 1992; Streeck & Hartge 1992). In order to gain any traction in the pursuit of functional explanations of these gestures, close attention to their exact 'placement' or timing within the unfolding turn at talk is needed, but hardly sufficient.

Kendon (1996) has shown that gestures can project aspects of discourse structure (topic-comment, lists, inter-clausal relations), as well as the illocutionary act that is being performed. He also identified a number of what he calls 'gesture families', each of which is connected via a prototypical hand-shape – precision grip, open hand prone, open hand supine – to a specifiable sense. It is associated with a certain type of context or contextual function: exactness, denial/negation, withdrawal from action/non-intervention, and so on. These associations are transparently motivated: for example, gestures made with the open hands facing down and pushing downwards or moving apart "share the semantic theme of stopping or interrupting a line of action in progress" (Kendon 2004: 248–9). Müller (2017) calls these gestures 'recurrent' and argues that they "show stable form-meaning pairings across a gesture and speech community" (Müller 2017: 280): "Their basic form concerns a basic Gestalt of selected features or parameters […] that does not vary across contexts and that comes with a more or less conventionalized basic prototypical meaning" (Müller 2017: 280). Müller and her co-workers identified the 'palm up open hand' (Müller 2003); 'palm away open hand' ('away gestures', Bressem & Müller 2014b); and cyclic gestures (Müller 2017). Harrison (2014) has described the 'organization of kinesic ensembles associated with negation', and Streeck (2009: Chapter 8) has delineated aspects of the practical logic of 'speech-handling' and claimed that "the implicit engagements with physical objects that are inherent in the motion-patterns of these gestures cluster in a coherent model that equates conversational interaction to the transfer of things" (Streeck 2009: 199). Wehling (2017) analyzes 'discourse management gestures' as expressions of underlying 'conceptual metaphors' such as 'discourse space is physical space', 'communication is object-exchange', 'ideas are objects', 'speaking is forward movement', and 'emphatic content negation is forceful object refusal' (Wehling 2017: 246, 253–5; see also Lakoff & Johnson 1980).

10. The view from cognitive linguistics

Conceptual gestures, including pragmatic gestures, are an ideal object for cognitive linguists: the metaphor systems of natural languages conceive – 'figure', 'construe' –

'abstract' cognitive domains in terms of bodily actions and experiences. Gestures *are* bodily actions and thus seem closer to the experiential grounds that form the 'source domains' of spoken-language metaphors: while language may draw an analogy between understanding and grasping, a (metaphorical) grasping gesture is a real, sensible grasping act, though performed away from the worlds of literally graspable things.

Cognitive linguists thus became intrigued by these gestures because they provided further evidence for the bodily foundations of the 'image schemata' (Lakoff & Johnson 1980) that form the conceptual basis of thought and language. Thus, the English language makes us think of emotional stress as *pressure*, and a downward-pressing gesture of the two hands gives bodily expression to this body-based metaphor, but it also evokes a bodily sensation of pressure. The most systematic analysis of conceptual gestures is Calbris's *Elements of Meaning in Gesture* (2011), which is remarkable for its radically form-based analysis of gestural conceptualization. Calbris analyses gestural action in terms such as (movement) plane, orientation, straight/curved trajectory, body part, location, and so on, all conceived in terms of the body's real (i.e. perspectival) positioning in the world, and, by observing the semantic effects that contrasts in these parameters of form achieve, arrives at statements of the "analogical links between gestures and notions" (p. 197). A characteristic example is Calbris's analysis of gestures of rejection: the way a body would reject – protect itself against – an oncoming object, for example by raising a hand to catch it or throw it back, is the way rejection is habitually displayed by gestures.

This is how cognitive linguists conceive of conceptual gestures: speech communities share conceptual metaphors (also called 'cognitive models' or 'cultural models') which coherently construe abstract content and experience in terms of concrete domains of embodied human experience: an argument is an oncoming object and therefore, whatever we know about how to deal with oncoming objects – dodge, evade, reject, throw back, etc. – is also applicable to arguments. Hand gestures that have the shape of such actions – say, a 'pushing' movement with an open hand – are in line with and thus co-express these conceptual metaphors. Thus, conceptual gestures are understood to be "gestures which represent abstract notions", and "metaphoric gestures … [to be] expressions of conceptual metaphors" (Cienki 2008: 5). In other words, hand gestures are taken to be communicative signs that encode – or rather imply – independently existing conceptualizations. These conceptualizations (e.g., 'understanding is grasping') project schematic bodily experience and action onto 'abstract' domains of experience.

Perhaps the most explicit version of the assumptions made by the cognitive linguistic account is found in an article by Wehling on pragmatic gestures (Wehling 2017). She writes:

> One has to consider the ways in which people reason about communication. While this may sound surprising at first, communication is actually an abstract domain of cognition: we cannot touch, smell, taste, see or in any other way directly experience

> 'communication' in and of itself […] Therefore, we construe communication in terms of conceptual metaphors. Metaphoric cognition, in which elements are mapped from metaphoric source to target domains […] aids our reasoning about abstract ideas. Two primary metaphors […] are foundational to our cognizing of communication: communication is object exchange and speaking is forward movement (and, inferred by both of them, discourse space is physical space). The primary metaphor for communication is object exchange, which includes the mapping that ideas are objects, has its experiential basis in our giving objects to others so they can see and manipulate them. Based on this metaphor we speak of giving and getting ideas […], and gestural mappings have been documented in conversational dialogue, for instance, when interlocutors use their hands as iconic containers when offering ideas to each other or hold hands up as if to stop oncoming objects when refusing ideas.
>
> (Wehling 2017: 253)

Despite the emphasis on the term 'embodiment' in cognitive linguistics, Wehling's account shows the intellectualist orientation of this account: gestures give expression to mentations, metaphorical or imagistic ways of thinking, but their precise bodily qualities – their nature as corporeal actions – is not deemed interesting, and gesturing itself is denied the status of cognitive activity. It is often more difficult than in Wehling's case to discern precisely how the relationship between the embodied practice of gesturing and the embodied experiences, skills, and cognitions that hand gestures articulate or enact is conceived by cognitive linguists. At some points terms such as 'express' and 'represent' suggest that the concepts that the hands enact are deemed independent of these enactments, at others it appears that the motions of the hands are taken as integral agents of embodied cognition (see, for example, Nuñez 2006). In *Gesturecraft* (Streeck 2009: Chapters 7 and 8) I have proposed that gesturing *itself* is conceptual activity, not just its corporeal expression: gesturing means articulating (construing) content in terms of familiar, if schematic, manual acts, that is, making sense of a cognitive object of any kind in terms of the ways in which hands, not minds, know about the world. The gesturing hands, in other words, do the *meta-phorein*, the transferring, and in the realm of pragmatic or 'illocutionary-act indicating' gestures (Kendon 1996) it appears that the linguistic conceptualizations *follow* their gestural counterparts (Olson 1994).

Instead of reiterating the philosophical objections here that have been raised by Ryle (1949), Wittgenstein (1953), Heidegger (1926), and Merleau-Ponty (1962), among many others, against representationalist theories of the mind (i.e., gestures give bodily, external, and visible form to mental images and conceptualizations), and more generally the dualism of body and mind, in the remainder of the Chapter I will account for the seizing gesture in Example 1, as well as a number of other gestures that its maker makes, in a fashion that emphasizes the identity of body and mind and the cognitive nature of *all* living motion. Like all animate movements, gestures respond to,

structure, and make sense of the moment; they are corporeal responses to real-world and virtual cues. They often resemble, and ultimately derive from, real-world actions. In other words, by spontaneously responding to a cue with a conceptual gesture, a human body picks out and responds to a cue in a discursive situation in analogy to its responses to tangible, material objects and situations.

When the shop-owner's hand suddenly forms a prehensile or 'grab-ready' posture, at the very time that a word-finding problem surfaces, the hand, not the mind, treats that elusive object as something that needs to be, or will imminently be, caught or grabbed, brought into manual possession. Clearly, the gesture is not the product of reasoning, of a mental model according to which words are tangible, seizable, and possessable physical objects. The immediacy of the gesture discourages any appeal to reasoning or 'thinking-for-speaking' in the explanation of its form. Rather, the gesture is one two-part movement or action by which a living body spontaneously organizes itself in, and adapts to, an evolving situation. The gesture picks out an element of the situation as relevant and, by the type of action it is, shows as what kind of an element it is being treated (e.g., as something that can be seized; Streeck 2017: Chapter 5).

Merleau-Ponty noted:

> Faced with an angry or threatening gesture, I have no need, in order to understand it, to recall the feelings which I myself experienced when I used these gestures on my own account. I know very little, from inside, of the mime of anger so that a decisive factor is missing for any association by resemblance or reasoning by analogy, and what is more, I do not see anger or a threatening attitude as a psychic fact hidden behind the gesture, I read the anger in it. The gesture *does not make me think* of anger, it is anger itself. (Merleau-Ponty 2002: 214, emphasis in original)

And Fulka (forthc.) writes about Merleau-Ponty's theory of gesture:

> Gesture, which is corporeal and meaningful at the same time, is a way in which a subject relates to the world and to others, finds a familiarity with them that precedes any intellectual judgement, and inhabits […] others and the world with his or her own bodily existence. (p. 2)

> The meaning of the gesture is understood […] in no way [through] an intellectual mechanism, but is an invitation – immediate and readily comprehensible without the need of any judgment – to share a common world in which we all exist as corporeal subjects and where we confirm the presence of each other through this immediate communication. The gesture of another person makes itself understood by tracing 'the structure of the world' in which I am immersed myself. (Fulka forthc.: 11).

The shop-owner's seizing act during his word-search is thus not an indication that he buys into the conceptual metaphor 'finding a word is catching an object', even though he very well might. The gesture is not made 'to' express a concept; there is no duality of form and meaning. The gesture, to paraphrase Wittgenstein (1953), is a component

of his natural word-searching behavior. "Getting ready to seize (forming a prehensile posture) and seizing are a human body's spontaneous and meaningful responses to a type of circumstance. This is what makes gestures legible and explains how 'pragmatic' gestures provide meaning and structure for, and how they make sense of, the communicative situation" (Streeck 2017: 241). They may respond to *any* cue (or theme or experience) that the body-mind turns to and makes sense of: a thought, a word, a perception, or someone else's action.

Cuffari and Streeck (2017) have argued that the phenomenal, experiential qualities of gestures such as seizing gestures explain the senses routinely conveyed by them. These senses of achievement, possession, and completion are phenomenally present when a speaker is making them. It is not that the speaker is simply giving visible form to a conceptual reality; rather, he creates a specific sensate preconceptual experience within himself that we can describe as feelings of 'achievement' or 'possession'.

An important feature of all gestures – as much as of all other corporeal actions – is their *kinesthetic* quality, that is, how they feel to the person making them, even if they do not reach the threshold of conscious awareness. We experience the external world through our movements, but this ultimately means through our proprioception (Gibson 1966). This is important to consider when it comes to gestures: they provide their makers with distinct (patterned), familiar, meaningful, preconscious enactive experiences – with feelings of action. *That* is how they participate in their makers' cognitive processes, not by giving concrete form to, or 'offloading', mental representations.

When conceptual gestures are habitualized and sedimented within a community of speakers, the person making them inherits corporeal experiences and their meanings from the community and enacts them in his or her own cognitive and communicative activities. Sedimented gestures are shared embodied thinking tools and making them is a form of public thinking, of mindful action. Among the gestures that the auto-shop owner makes during the course of a day are many sedimented gestures, some widely shared, others seemingly personal habits. Among these sedimented gestures we find ones that are experience-near ('turn key', 'push', 'put gear'), while others appear abstract and their motivation opaque. Among these is a cutting or slicing gesture, a cutting-in-two: a downward stroke of the flat hand, held palm-side. This gesture is in each case associated with an explicit or implied act of negation. While it is possible that this coupling of form and context is a culturally entrenched sign, how the action has come to be associated with negation is not clear at all (one possibility is that the act divides the world into two sections, true and false, or yes and no). Another habitual gesture is clearly inflected for its enactment in the auto-shop owner's particular life-world: it is a wiping act, a flat hand, palm down, moving back and forth laterally, at the level of the abdomen. This gesture is coupled with certain directives: finish everything, make sure everything is done, and the like. While wiping clean or clearing the table are familiar actions in the completion of activities, the particular

positioning of the hand, typically above or near the engine of a car, specifies that the gesture embodies the completion of a repair job.

While it is evident that sedimented gestures alternate with spontaneous creations in the gesturing of this speaker, what remains unexplained is *how* gestures are sedimented – how they move, in Merleau-Ponty's terminology, from spontaneity to sedimentation. In Streeck (forthc.) I make the case that this happens through a sequence of three abstractions. Each corresponds to one of Peirce's three categories of sign – indexical, iconic, symbolic (which appear as ordered stages) – and each replicates a stage in the evolution of human communication. Again, looking at data from the auto-shop we see the owner, in the process of diagnosing what causes a customer's car not to start, discover a misplaced bracket inside the carburetor, and his hand turns it around and properly puts it in place. Then he repeats the act several times and a moment later, after he has left the bracket in place, replicates the turning action with his hands a few inches above the carburetor: a gesture is abstracted from a practical action as the hands are abs-tracted – 'pulled away from' – the object at hand. Leroi-Gourhan (1993; see also Copple 2003) has described this transition as a 'liberation of the hand' from the material object, setting it free to communicate.

The gesture derives its meaning from its immediate juxtaposition to a practical action and the object that action affects. It is a schematic re-enactment of what happened just a second before, a retrospective enhancement. The gesture is indexically tied to the immediate situation that it explicates, and it may not live beyond the present situation. Nevertheless, any gesture is open to repetition, and thus to sedimentation.

The second abstraction occurs when such a gesture is taken out of the situation in which it originated and of which it makes sense and introduced into other situations in order to *evoke* or *conjure* the original one. When he was done fixing the carburetor, the auto-shop owner explained to me what the trouble was. When he reported the misplaced bracket – he says 'she flip it' – he performed a modified version of his own prior explicative 'flipping' act. The gesture had now become a narrative or depictive device. It conjured images of 'flipping' and 'putting it a different way'; thus becoming *iconic*. This mode of communication about the world beyond the here and now – the mode of *displaced reference* – constitutes a more advanced stage of communication and has been associated with the beginnings of trade (Leroi-Gourhan 1991; Tomlinson 2015). Communication within the here and now is superseded by story-telling about the wider world: the transition from *mimetic* to *symbolic culture* (Donald 1991). Simply taking a gesture from its indexical context of origin to another context and evoking the original one by means of a gesture replicates in a nutshell a stage in cultural and symbolic evolution (for a similar argument see Goodwin 2018). Clearly, iconic gestures, wherever they emerge, can be replicated and thus sedimented and become common currency. The 'turn key on', 'put second gear', and 'push' gestures that the shop-owner

makes while talking on the phone appear to be derived from his own routine actions as they look like anyone's 'turn key', 'put gear', and 'push' gestures.

The third abstraction is the liberation of the gesture from its ties to concrete contexts, which begins once a gesture has become common currency and is massively repeated and imitated during everyday interactions. Once a certain habitualized form 'circulates', that is, is imitated *as a gesture* by others, it can be enacted in an ever-broader set of contexts that are linked by association chains: the transfer to new contexts begins with individual gestural acts and becomes 'entrenched' by individual and, especially, inter-individual repetition.

This stage is exemplified by a series of three 'hand over' gestures made by the autoshop owner as he lists the consequences of the misplacement of the bracket that he had just reenacted and described. Each clause is accompanied by a hand-over act, the first two one-handed, the third bimanual. This hand-over gesture is perhaps the gesture most frequently enacted anywhere in the world: it is the prototypical conversational gesture, displaying the offering or handing over of information (or opinions or other virtual objects) or the turn.

(3) 1 All the car smoke,
2 wasting gas
3 no power.

Hand-over gestures are *symbolic signs* in Peirce's terminology (Peirce 1995): they have lost their indexical and iconic connection to a particular context and thus become liberated to make sense of *any* context or cue by bringing their own inherent significance to bear on it. Whatever comes along that is rejectable, there is a practiced bodily way of rejecting it. This, roughly, appears to be the developmental cycle by which recurrent pragmatic gestures come into being.

As it is no longer tied to a concrete object or circumstance, a socialized gesture may also lose structure: for example, shrugs are sometimes performed just by a rotation of the hands or even just an eye-brow raise (Streeck 2009: 189–92). While we cannot observe this process of 'de-categorization' in real time, and even do not quite understand at what time-scales such processes, familiar from spoken languages, take place in gesture, we can assume that the logic in which grammatical and gestural forms evolve is similar if not the same. According to Bybee, the process known as *grammaticalization* is simply

> *automatization* or 'chunking' of motor actions. […] Grammatical constructions of all types are automated, generalized motor routines and subroutines that can be strung together or embedded in one another to produce fluent speech […] The changes in form that occur in the grammaticalization process closely resemble changes that occur as nonlinguistic skills are practiced and become automatized. With repetition, sequences or units that were previously independent come to be processed as a single

> unit or chunk. […] The whole chunk begins to reduce in form […] These basic principles of automatization apply to all kinds of motor activities: playing a musical instrument, playing a sport, stirring pancake batter (Bybee 1998: 153).

11. An anthropological perspective on gesture

The pragmatist (Mead 1934) or praxeological (Streeck 2013) approach to the analysis of gesture that is outlined above with a focus on a mode of gesturing that I have called conceptual action is an attempt to work towards a *holistic* theory of gesture, a theory that avoids the category mistake of neo-Cartesian cognitive psychology and linguistics, in which gestures are treated as corporeal (external) pictures of mental (internal) pictures ('image schemata'), as well as the equally dualist instrumentalism of much research on multimodal interaction, which is given away in ubiquitous formulations of the type that 'speakers *use* language, their bodies, and physical objects to communicate', a formulation that posits the speaker as a homunculus using his physical body as a communication instrument. The alternative presented here approaches gesturing as corporeal activity whose *specific* corporeal characteristics shape its cognitive potential and features. In other words, we take the *materiality* of hand gestures seriously, a perspective that de Freitas and Williams (2017) have aptly called 'cognitive materialism'. The materiality of gestures is that of manual actions abstracted from the (classes of) physical objects and processes to which they originally pertain, but nevertheless preserving the intentionality of the action, its specific object-directness.

I have thus tried to demonstrate that we can actually observe how communicative gestures emerge from practical actions in the world at hand, how repetitions and removals of hands from things transform instrumental actions into patterned communicative acts. 'Erga' (communicative forms) are still being sedimented in 'energeia' (Humboldt 1988 (1836)), spontaneously adaptive actions and gesticulations, and we can therefore witness in contemporary videotapes how corporeal action becomes conceptual, how it generates kinesthetic and visible categories of experience. It must be emphasized that the process described here only covers particular modes of gesturing; deictic gestures perform different communicative tasks, directing visual and cognitive attention, and communities have evolved systematic and economic practices for solving them, as they seem to have in response to depiction tasks.

I have furthermore shown that gestures that have been abstracted from practical (notably including demonstrative) actions can be taken to other situations and be enacted there, usually in modified form, to *conjure* the original situation; the gesture can become an iconic story-telling device. What is not accessible to observational research, simply because of the amount of data that would have to be collected over

long periods of time, is what I have called the 'third abstraction', the uncoupling of the gesture from its original or analogous contexts of action and its transfer to entirely different contexts. This is exemplified by the 'handing over gestures' universally common at the end of clauses and turns. This gesture construes the moment as a handing over; it is a socialized body's intelligent and intelligible response to the moment, but not because it represents an idea such as 'turns at talk (or ideas, opinions) are physical objects'. Generalization across contexts takes place once a gesture (i.e. a distinct manual action gestalt) is habitualized by a multitude of people within a community. While we have no data on this 'invisible hand process' (Keller 1994), we can see parallels between the hypothesized emergence of 'conventional' gestures and the evolution of grammar. Grammaticalization researchers explain grammaticalization – the emergence of habitualized forms and constructions – as a by-product of the bodily activity of speaking which is not different from the habitualization of other bodily skills. The same should be true, *a fortiori*, for hand gestures.

This approach to gesture, thus, couples recent insights into the evolution of linguistic form and grammar with a holistic understanding of human communicators as unified body-minds that cannot be divided in two. Any living motion is a sense-making act, and this is as true for the self-propelling movements of an amoeba's tail as it is for the spontaneous gestures of human hands in conversation: both are meaningful responses to cues, and both *make sense* of a cue via an enactive form (Thompson 2007). In addition to the recent *enaction* school of thought that straddles the life sciences and phenomenology (Fuchs 2009), we can take inspiration from phenomenologists (Heidegger 1962, Merleau-Ponty 1962, and many others) who have insisted on the understanding of all cognition and ideation as grounded in the 'mindless coping' of human bodies, continually engaged as we inhabit our world. Other thinkers, particularly from a school known as *Philosophical Anthropology* (Fischer 2006), notably Gehlen (1988) and Plessner (1975), but also the French paleontologist Leroi-Gourhan (1993), have emphasized the centrality of the hand in the cognitive evolution of the human body.

In sum, we take the human life-form or 'animate form' (Sheets-Johnstone 2012) as our starting point, the species-specific body and the distinct movements by which it interacts with its world. "Creaturely forms [….][have] certain potentialities of movement and not others in virtue of being the bodies they are, and in turn, having certain conceptual potentialities and not others" (Sheets-Johnstone 2009: 20). The human body engages with the world, knows the world, and makes its worlds in very large measure through skilled, adaptive, autonomic actions of the hands. What is so fascinating about gesture is that it demonstrates that this mode of physical-cognitive engagement continues even when there is nothing physical for the hands to engage with: hands continue their practical sense-making activity in response to anything that 'comes up' in conversation and must be made sense of. Whatever it is, hands understand it in

their own ways and bring their knowledge of the world to bear on it. Gesture could thus be conceived as a 'layer' of human conceptual activity, emerging prior to linguistic conceptualizions and sometimes grounding or facilitating them. Thus, when we see new gestures emerge in someone's situated activities, we witness that important transition from action to symbolically mediated communication, the meta-phorein of concrete, sensate actions of the hands to other domains of human experience, cognition, and communication.

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Social media research

Brook Bolander
Monash University

1. Introduction

Positioned within the Handbook's 'Traditions' section, this entry probes changes and developments in pragmatic research on social media. While social media is characterised as an example of Web 2.0, the chapter's focus on change and development means it also discusses research that would commonly be seen as illustrative of an earlier stage in web development, or Web 1.0. This history is important for understanding the contemporary diversification of research foci, contexts, data and methodology. Given the wealth of scholarship on social media from a broadly sociolinguistic perspective (encompassing pragmatics), the chapter attempts to avoid extensive listing of literature according to research themes and areas. Whilst presenting examples and providing readers with further literature, it is based instead around a discussion of the ways in which the context for language use online has been viewed and complicated over time, and across various research traditions. This provides the foundation to reflecting upon how changes in what counts as context are relevant to research foci, and choice of data and methods.

We can now look back on almost 30 years of linguistic research which variously probes into how language is used in online spaces. A review of scholarship across these three decades shows great variety and change, with regard to research context and setting, foci, and data and methodology. Whilst this is perhaps to be expected given the relative novelty of the field, the degree of change might also be explained by marked developments and innovations in technology, a diversification and upsurge in global internet access, and changes in the way the internet is understood and variously positioned vis-à-vis offline environments and spaces.

In positioning this entry in the Handbook's 'Traditions' section, I thus see the chapter as a space to discuss and delineate ways of doing pragmatic research on and with social media data, and in doing so to reflect upon variation across time as regards the context and setting of research foci, data and methodology. Given the degree of change, my discussion of social media research as a tradition is predicated on including references to and examples of online discourses and types of interaction which would not typically be seen to fall under the rubric of social media, and hence of including research which explores language use in so-called Web 1.0 as opposed to Web 2.0 contexts.

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To this end, the entry has six sections including this introduction. In the second section, I address terminology as a means to position the focus on social media as part of a more general engagement with Web 2.0. Subsequently, in Section 3, the chapter turns to early scholarship conducted in the latter half of the 1980s and 1990s which falls under what Androutsopoulos (2006) has called the "first wave" of linguistic research online, and which prioritises considerations of the role of technology whilst placing emphasis on differences and similarities in language use online as compared to offline. In Section 4 the entry discusses scholarship which argues for the need to complicate context, and which thus analyses and attempts to describe and explain language use in connection with a wide range of technological and social factors. This theme of complicating context provides the link to Section 5, where the chapter turns to probe the situatedness of online interactions, via a discussion of users, blended data and mixed methods. The chapter ends with an outlook to future research, which takes the form of a reflection I hope will prompt discussion, both with scholars working in as well as outside of pragmatic and sociolinguistic frameworks. In my treatment of social media research in this chapter, I limit myself to scholarship which relies on individual data collection. Whilst some of the discussion is also relevant for corpus-based and big data approaches, such approaches have different starting points as concerns their research outlook and design, and hence merit treatment in their own right.

2. Social media and Web 2.0

As outlined by Zappavigna (2012: 2), social media is an "umbrella term generally applied to web-based services that facilitate some form of social interaction or 'networking'". Given that social media applications, like Facebook, Twitter, Instagram, YouTube and WhatsApp, are characterised as social, interactive and participatory, they are generally subsumed under the label of Web 2.0, and seen as prototypical and constitutive of Web 2.0. In this sense, they are viewed as part of a later stage in web development, as compared with, what was labelled ex post facto, Web 1.0 (Herring 2013).[1] Web 1.0, including, for example, directory services, non-interactive early filter-style blogs and homepages, is typically viewed as a static space, where content is read-only and generated by technologically savvy people who have the ability to create, author, moderate and (hyper)link sites and content. Web 2.0, on the other hand, is conceptualised as comparatively interactive, dynamic and user-generated, and as shaped by a

1. Since becoming popular as a term, Web 2.0 has become more widely used than Web 1.0, with the latter tending to surface only when it is being compared with Web 2.0.

progressively diverse range of people. It is thus seen to facilitate participation, social interaction and exchange.

However, despite its widespread contemporary usage, the term Web 2.0 is controversial. As underscored by Herring (2013), this relates both to it suggesting a degree of change which is paramount enough to warrant use of a new label, and to the fact that a diverse range of applications tend to be subsumed under the umbrella of Web 2.0. According to Thurlow (2013), the term is also problematic because it conflates 'interactivity' as a technological feature of Web 2.0 applications with 'interaction' as a "social process", which may but often does not actually or necessarily take place. It suggests, in other words, a degree of distributed sociality which does not reflect practice (for a detailed discussion, see Thurlow 2013).

When taking social media as the focus of this entry a balance thus needs to be struck. At the heart of characterisations of Web 2.0 and of social media is the recognition that online spaces do not simply cater to the exchange of information. As suggested above, they are instead primary sites for relational and interpersonal work – across both professional and non-professional contexts. Since the large majority of the content on Web 2.0 sites is "human discourse" disseminated through various modalities – "text, audio, video, and static images" (Herring 2013: 1) – and involving a diverse range of individuals, Web 2.0 is of great interest for pragmatics. And indeed, the increasing social nature of the web has led to an upsurge in scholarship on identity, performance, participation frameworks and interactional patterns, and thus also to an increased focus on users and what they do with and through language and other modalities. Yet as implied by the aforementioned critique, this should not suggest homogeneity across social media with regard to the degree of interaction, blind us to the persistent digital divide, or intimate that the internet is an egalitarian democratic space.

In this chapter, I thus use the term social media to highlight the prominence of the relational and interpersonal. In this sense, I shy away from presuming a fixed divide between Web 1.0 and Web 2.0 and acknowledge instead that there can be both continuity and (technological) novelty across time. In doing so, the chapter encompasses what Herring (2013: 1) labels "familiar" Web 2.0 (or existing phenomena which remain relevant in Web 2.0 environments), "reconfigured" Web 2.0 (or those that are adapted to new environments) and "new" Web 2.0 (or emergent phenomena which either did not exist or were not widely and publicly recognised prior to Web 2.0).

3. Looking back

Writing in 1996, Wilbur (p. 6) maintains "[w]hatever else Internet culture may be, it is still largely a text-based affair" (see also Yus 2011). Yet despite the prominence of

language in what was mostly at that time labelled computer-mediated communication in research of the late 1980s and 1990s, linguists were "slow to consider computer-mediated language a legitimate object of inquiry" (Herring 1996: 3). Early exceptions include Baron's (1984) work on language change which addresses online equality and the democratising effect of the Internet (a topic taken up in various publications since), and Ferrara, Brunner and Whittemore's (1991) discussion of "Interactive written discourse". According to Herring (2001: 613), this latter publication sparked serious interest, such that "[t]he immediately following years saw the rise of a wave of CMD [computer-mediated discourse] researchers, working independently on what has since emerged as a more or less coherent agenda: the empirical description of computer-mediated language and varieties of computer-mediated discourse". And indeed, it is from the mid 1990s and the early part of the last decade in particular that we find increased engagement with computer-mediated communication, as evidenced by an upsurge in publications in books and journals, and the launching of a journal devoted to language use online (*language@internet*, 2004).

The study of language use online can be said to have undergone three main stages, or "waves", as they are called by Androutsopoulos (2006). The first predominantly spans the 1980s and 1990s and encompasses the literature referred to in the previous paragraph. Drawing on theories and methods from pragmatics, discourse analysis and sociolinguistics, this work has at its core an interest in describing "the *language* of CMC" (Herring 1996: 3, emphasis in original). Given the time period in question this research on – what we would now commonly refer to as – Web 1.0 environments, typically compared synchronous (real time modes, like instant messaging and chat) with asynchronous modes (those with a time lag between the production and reception of messages, like mailing lists and discussion boards). These comparisons were then used to derive associated linguistic descriptions (Androutsopoulos 2006: 420). As suggested, this work emphasises the role of technology or the medium, which is assumed to determine the relative presence, absence and type of linguistic features, typically as compared across synchronous and asynchronous modes, and across broadly conceived online and offline spaces.[2]

What we find here, in other words, is a tendency to homogenise, on both a general and specific level. On a general level, computer-mediated communication is treated as "a single, homogeneous genre or communication type" (Herring 2007, emphasis

2. As pointed out by Tuija Virtanen (personal communication) there are examples of research from the 1990s which take what we might now call an 'affordances-based approach'; work which, despite assuming the primacy of technology nonetheless tackles how users pragmatically "adapt" (Verschueren 1999) to these technological characteristics, e.g., Cherny (1999), Danet (ed., 1995).

removed), as evidenced by terms like "Netspeak" (Crystal 2001, 2006) and "Cyberslang" (Abel 2000). On a more specific level, homogenisation accrues with regard to individual modes, as suggested by references to "*[t]he* language of e-mail" and "*[t]he* language of chatgroups" (Crystal 2006, emphasis added). As suggested, common to both is an over-emphasis placed on the medium, or the technological component inherent in the stock phrase computer-mediated communication, a phenomenon which has since been labelled "technological determinism" (see also Androutsopoulos 2006, Baym 1995, Herring et al. 2013, Squires 2010).

In characterising first wave sociolinguistic research of this kind, we need to be mindful of the role played by the perceived separation of and distinction between offline and online spaces, for what was researched and studied, and where and how. As underscored by Orgad (2009: 36), a clear-cut distinction between the 'offline' and 'online' has "been constitutive of the understanding of the internet from the earliest days of internet research". It is likely that this presumption of inherent difference, distance and separation between the offline and online was instrumental to delimiting such first wave research to the empirical study of similarities and differences between online and offline spaces, and its concurrent focus on describing the properties of online varieties and the role played by technology for their emergence. In other words, because the online and offline were perceived to be separate and different, core research questions surrounded possible grounds for such difference – with technology emerging as a prime explaining factor here – and comparisons of difference across online and offline, and spoken and written spaces and types of communication.

4. Complicating context

A move away from recognising that neither the web as a whole nor individual kinds of computer-mediated communication can and should be treated as homogeneous (see, e.g., Dürscheid's 2004 discussion of "Mythos Netzsprache", or the myth of Netspeak) constituted a parallel move towards recognising the role played by both medium and social factors. Without denying that technological properties of particular applications are important for language use, a shared understanding that these should not be addressed at the expense of the numerous social factors which influence language use is at the heart of a "second wave" (Androutsopoulos 2006) of sociolinguistic computer-mediated communication research. This wave, recognises, in other words, that context is more complex than and hence needs to be extended beyond technology.

This is perhaps best epitomised by Herring's (2007) faceted-classification scheme for computer-mediated discourse which is constituted by ten medium factors and eight social factors which have been shown to influence language use online. Under

medium factors, Herring (2007) includes: synchronicity, message transmission, persistence of transcript, size of message buffer, channels of communication, anonymous messaging, private messaging, filtering, quoting and message format. Social factors listed comprise: participation structure, participant characteristics, purpose, topic or theme, tone, activity, norms and code.

Drawing inspiration from Hymes's (1974) SPEAKING mnemonic, Herring (2007) underscores that the list is to be understood as an open-ended etic grid, which is unordered, such that the facets stand in no *a priori* hierarchical relationship to one another. As Herring (2007) maintains, this is because "one cannot be assigned theoretical precedence over other for CMD as a whole; rather, the relative strength of social and technical influences must be discovered for different contexts of CMD through empirical analysis". Whilst acknowledging then the likelihood that the technological affordances of particular modes will "presumably mak[e] them more likely to occur" (Herring 2007), there is no necessary connection between a particular contextual feature (whether technological or social) and particular ways of speaking. This move to complicate context, in other words, does not just entail a shift towards recognising that many factors warrant recognition when attempting to analyse pragmatic data. It also suggests the need for empirical analysis to ascertain how particular factors coalesce and become mutually relevant, and how participants attempt to exploit particular affordances to achieve personal and collective interactional goals. To illustrate these developments, I discuss here a series of examples from pragmatic research on social media, via a focus on agreement and disagreement, and identity construction.

Reviewing research on disagreements and agreements across various online environments underscores a tendency for numerous factors to be relevant for their relative presence and absence, and linguistic realisation. Drawing on data collected from two asynchronous fora (Greek students and professional academics) and follow-up interviews, Angouri and Tseliga (2010: 65), for example, draw attention to the central role played by norms and expectations for the realisation and evaluation of "potentially face-aggravating acts", including "inappropriate and impolite language use", together with participant identity and topic (with political topics, for example, being linked to the prevalence of conflict). Coalescing and merging with these social factors, the authors highlight the importance of the medium in the form of the relative "lack of paralinguistic cues". Indeed, in their fora data, the lack of paralinguistic cues becomes tied to the prevalence of "[u]nconventional spelling and punctuation" (Angouri and Tseliga 2010: 77), with these becoming a means to communicate "strong disagreement" and "aggravate face-threatening acts", or more generally to "accentuate[…] emotions".

In my own research on responsiveness in agreements and disagreements in blogs, as part of a larger analysis of language and power, I demonstrate the relevance of the social factor of participation framework and the medium factors of message format and quoting (see Bolander 2012, 2013). Personal/diary blog comments following a

blogger's post appear in the order in which they are posted by readers. This means that comments which respond to one another do not necessarily follow one another in a linear way. For this reason, readers who wish to respond to the blogger or to one another need to find ways to signal to whom they are directing an agreement or disagreement. In Baym's (1996) study of disagreements and agreements in Usenet, participants tend to signal with whom they are agreeing and disagreeing by using the in-built technological affordance of quoting provided by the Usenet interface. Since quoting was not an affordance of the personal/diary blogs I studied, my data suggested more widespread variation in the ways responsiveness was marked; from explicit means, including the use of naming and manual quoting, to implicit means, where there are no obvious markers of responsiveness. In discussing responsiveness in the 185 disagreements and 219 agreements in the comments sections of the eight personal/diary blogs, I found that the presence of disagreements and agreements where there are no obvious markers of responsiveness could be interpreted by looking at the participation framework of the blogs, and at the related roles and expectations.

In the first instance, readers tend to respond to bloggers more than to one another, with reader-reader interaction appearing comparatively infrequently in the data. I interpreted this as reaffirming the bloggers' privileged position, and reflecting an association between the bloggers' role as authors and them being cast into the role of, what Kerbrat-Orecchioni (1990: 90; cf. also Marcoccia 2004) has called, the "favoured recipient", or main addressee when a message (a comment in the case of the blogs) is not explicitly marked as responsive, and ratified recipient in those instances when a comment is explicitly directed at another party. An analysis of the rate and types of responses (of readers vis-à-vis bloggers and readers vis-à-vis one another), coupled with a consideration of participation frameworks given the absence of the technological affordance of quoting, thus allowed me to probe into the way sequentiality is constructed across disagreement and agreement exchanges, and to draw conclusions regarding the relative appropriateness of such practices.

By means of a further example, let me consider research on identity construction in Facebook. Early scholarship on identity construction tended, as delineated in Section 3 above for language use more generally, to explain identity through recourse to the medium, particularly anonymity (for a critique of these early approaches to identity see e.g., Thurlow et al. 2004; Page 2012). Yet the upsurge of sociolinguistic research on identity online in the mid-2000s was accompanied by a progressive shift to a view of identity online as "multifaceted and interwoven with identity construction offline in complex ways" (Bolander & Locher 2015: 105). Social media, including sites like Facebook, thereby became of great interest, given that they explicitly cater to the maintenance and construction of relationships.

In our research on identity on the social networking site of Facebook (see Bolander & Locher 2010, 2015; Locher & Bolander 2014) we explore the ways identity emerges

in and through "acts of positioning". Focusing on the prominent activities of status updates and reactions to status updates, our work analyses how relatively unprompted creative language use in these activities is used to construct and co-construct identity. Our interest in studying the ways individuals position themselves in status updates (and how this is responded to in reactions by other participants) is based on the premise that each instance of positioning constitutes an act of underlining a particular self at a particular point in time, with repetitions of these selves, over time, becoming more salient markers of identity (Bolander & Locher 2015).

To study acts of positioning, we analysed 474 status updates and 228 reactions to status updates produced by ten individuals living in Switzerland and ten living in the UK. We thereby developed a series of second-order identity categories on the basis of the data, which we subsequently grouped into five broad types: pastime, personality, humour, relationship and work.[3] While grounded in a qualitative analysis of each status update, the subsequent quantification of these types allowed us to explore patterns within and across our two focus groups, whilst also paying attention to idiosyncrasies. We thereby found striking similarities in percentages across the groups, with personality claims being made the most often, followed by pastime, humour, work and relationship claims. In interpreting our findings and the salience of personality traits, we highlighted the importance of participant relationships, claiming that the tendency for participants to have relationships anchored or grounded offline, means there is less of a need to establish or reinforce identity claims which are already known (Bolander & Locher 2015).

As the discussion in this section indicates, the shift from first to second wave studies is relevant in changing the focus of research, and hence key to its diversification. As research expands – from a foregrounding of technology to a consideration of social factors, and the interplay between social and technological factors – the stage is also set for scholarship on language variation, as reflected in and performed through social interaction, and in relation to social identity and identity construction. Such "third wave" (Androutspoulos 2006) research thus continues to demonstrate an appreciation for the interplay of medium and social factors for language use, but adds a further dimension, as seen for instance in the example of language and identity discussed above. (For further examples of research on language and identity online, see also e.g., Barton & Lee 2013; Lee 2011, 2014; Page 2012; Vaisman 2016; Zappavigna 2016; Georgalou 2017).

3. We chose to keep humour separate from personality because of its salience and given that it can overlap with all the other categories, so as to be able to explore the move in more detail.

5. The situatedness of online interactions: Users, blended data and mixed methods

Writing this entry in 2019, we can perhaps now speak of a fourth wave of sociolinguistic research. This wave, however, does not supplant the move to complexify online context or the upsurge in research on language variation in relation to interaction and identity. It instead complements them, by foregrounding the situatedness of online interaction in and across online and offline spaces, and by encouraging enhanced observation and focus on the user; developments which have implications for data and methodology. As outlined in Section 3, a strict separation between the online and offline was constitutive to understandings of the internet (Orgad 2009) and instrumental to prioritising differences between the online and offline (as realised through technology). Analogously, at the level of the online itself, scholarship draws attention to the relevance of varied understandings of the web (Markham 1998) and computer-mediated communication (Androutspoulos 2013) for online data collection and methodology. In this section, I discuss this variation as a means to contextualise more recent developments in the way scholars are researching language use online.

For Markham (1998), the web is variously conceptualised as "a tool for communicating", "a place for communicating" or "a way of being in the world". For those who see the web as a tool, it constitutes an additional means for information exchange, in the sense of offering extended possibilities beyond other forms of written, spoken and mediated communication. As a place for communicating, the web is constituted by "cultural spaces in which meaningful human interactions occur" (Markham 2004: 99). From this vantage point it is not fixed or static, but a dynamic, changing space, which is shaped and co-constructed through participation and interaction. Communication hence emerges as a kind of "liquid architecture", which "breathes, [and] pulses", and "whose form is contingent on the interests of the beholder" (Novak 1991: 272). This is compatible with an approach to the web as a way of being, an understanding which underscores the performative power of online interactions, and the web as a means to experience self and other (Markham 2004: 100).

These can roughly be mapped onto Androutsopoulos's (2013) distinction between computer-mediated communication as text (compare the web as tool) and place (compare the web as place and way of being). From the vantage point of computer-mediated communication as text, "digital modes" emerge as "'containers' of written language", which tend to be studied by means of "etic" "classifications and categories" and hence "from a distance" (Androutsopoulos 2013: 239). The notion of computer-mediated communication as place, on the other hand, suggests that these modes are discursively created spaces which are dynamically linked to other online and offline activities (Androutsopoulos 2013: 239). These latter perspectives (i.e., place and way of being) suggest the need to explore the user's practices as situated in and across both online

and offline spaces. To my mind, they also encourage an enhanced focus on multimodality, since Web 2.0 discourse (see also Section 2) is typically multimodal and framed by multimodal contexts. Neither content nor place, in other words, are monomodal, and we thus find, for instance, the inclusion of "text comments on photo-sharing sites; text (and video) responses to YouTube videos; text (and voice) chat during multiplayer online games; and text messages from mobile phones posted to interactive TV programs" (Herring 2013: 4–5).

To a certain extent, variation in how the web is perceived, in what counts as data, and in where and how to collect it, are motivated by research questions and epistemology (see also Jucker 2009; Bolander & Locher 2014). From this vantage point, integrating, what Androutsopoulos (2013) calls "user-based data" in contrast with "screen-based data" via direct contact with participants, becomes particularly important for the study of "participants' discourse practices and perspectives or to relate these practices and perspectives to observable patterns of language use" (Androutsopoulos 2008: 2). However, whilst certain research questions might suggest a greater need to integrate user-based data and to mix user-based with screen-based data, it is also fair to claim that, irrespective of research question and epistemology, "researchers commonly find that the interpretation of linguistic findings can benefit from some awareness of the social and situational context of the data" (Androutsopoulos 2013: 240). This is particularly the case if we acknowledge the inseparability of the online and the offline.

Writing in 2004, Jones criticises the fact that much research on digital discourse tends to ignore the physical, material worlds of online users: "Reading many academic accounts of computer-mediated communication […] leaves one with the impression that such interaction takes place in a kind of virtual vacuum with little connection to the material worlds of the people sitting in front of computer screens and producing the words that analysts spend so much time dissecting and interpreting" (Jones 2004: 21). Drawing on observations of and discussions with freshman students in his composition class at City University of Hong Kong, he argues that this "virtual vacuum" does not mirror either practice or perception. The majority of users do not see the online and the offline as distinct (Jones 2004: 24). The online tends instead to be viewed as an "extension" of offline interactions, such that online practices serve to "ground [users] within their existing material communities and circumstances" (Jones 2004: 24). For Jones (2004), this suggests the need to extend and problematise the discussion of what counts as context to include elements of both the online and the offline. This means acknowledging that an individual's "environment of communicative possibilities" (Jones 2004: 25) can and typically does include possibilities offered by online (e.g., an affordance of an online chat application) and offline technologies (e.g., the presence of a computer whilst one is online via smartphone), both of which

need to be taken into account in addition to the wide variety of social factors shown to have a possible influence on language use.

Reviewing research since Jones's (2004) critique, it is apparent that there has been a move to acknowledge and explore the implications of this situatedness of online interaction. This translates into implications for what counts as data and where and how it is collected; with scholars progressively relying on blended data, and mixed methods. We find increasingly more research, in other words, which uses textual and multimodal data gleaned from extensive observation within, across and outside of social media applications, combined with an analysis of what participants do and interviews with participants about their own practices of doing (cf. e.g., Baym 2003; Bolander 2012, 2013; Jones 2004; Lee 2011; Spilioti 2011; Tagg 2016; Tagg & Seargeant 2016; Wargo 2015; Georgalou 2017).

Oftentimes such research entails drawing on ethnographic methods, which foreground the importance of observation online, or via a blended approach. An illustrative example is Spilioti's (2011) research on relational work and politeness in text-message closings. In this study, Spilioti (2011) aims to explore how participants' perceptions of politeness and appropriateness relate to the ways they use closing formulae in text messages, to analyse whether and when closings are considered appropriate, and to study the types of closings her participants use. To study relational work and politeness in closings, Spilioti (2011) uses a questionnaire, a corpus of text messages exchanged by her participants, participant observation and interviews. This combination of data and methods allows her to explore the linguistic features of closings whilst also elucidating which factors emerge as important for whether and how closings are performed (e.g., frequency of contact between participants, purpose and type of exchange, relationship between the participants, and the time of day the exchange took place). At the level of theoretical contribution, Spilioti (2011: 81) is thereby able to demonstrate that closings are not always politeness strategies, but emerge as politeness only when relational work is needed (e.g., to reaffirm inactive relationships, or in connection with face-threatening acts).

Barton and Lee (2013) similarly argue for and demonstrate the value of working with blended data in connection with a range of topics, including multilingualism, identity construction, digital literacies and stance-taking. With backgrounds in literacy studies, the authors argue for the importance of combining "the study of practices with the analysis of texts in order to understand language online" (Barton & Lee 2013: 11). This entails mixing and merging methods, and warrants an "ecological approach [which] accept[s] that all activities are situated and that people's actions both affect and are affected by the environment they are in" (Barton & Lee 2013: 13). This is, for instance, exemplified in their study of Hong Kong university students' Web 2.0 writing activities, where they draw on a pre-interview survey, interview data, observation of

participants' profiles, observation of their linguistic practices and screen recordings. The study of practices is also facilitated by their development of the methodology of the techno-biographic interview, through which they analyse participants' relationships with technology (Barton & Lee 2013). Compatible with their situated approach, the techno-biographic interview prompts interviewees to position themselves vis-à-vis and take a reflexive stance on their encounters with technology at different times, locations, and points of importance in their lives. Participants are thereby prompted to do so in relation to their current practices, their online participation, life history, domains of life, transitions, cross-generational comparisons and language, whilst also recounting a typical day with technology.

A further example is provided by Lee's (2011) study of language use in microblogging and status updates produced by Cantonese-English bilinguals on Facebook. Her focus on texts allows her to explore emergent patterns regarding language use, and to hence categorise status updates according to 11 core functions (e.g., reporting mood, expressing opinions and judgements, references to everyday life) (Lee 2011: 115). Through the integration of practices, Lee (2011) is able to demonstrate the ways language use on Facebook walls becomes entangled with other spaces inside and outside of Facebook. Through her study of the Facebooker Peggy she highlights the ways new media converges (see also Cormode & Kristhnamurthy 2008; Hoffmann 2017), and underscores the blurring of boundaries between the online and offline. In this regard, Peggy, for instance, tends to microblog longer blog entries from her blog into shorter and more concise Facebook status updates and, whilst in hospital giving birth to her daughter, maintains a consistent online presence.

A further example is provided by Adami's (2014) study of the "crossposting" practices of a UK food blogger (Cass), based on two-months of observation. Theorising crossposting as the "transformative recontextualization of sign complexes" through "the reposting of texts and artefacts in multiple spaces" (Adami 2014: 422), Adami presents a five-point analytical framework for its study. Focusing on Cass's crossposting practices from blogs to social networks, including Facebook, Twitter and Pinterest, she draws attention to the relevance of crossposting for changes in the meaning, style and genre of the texts and artefacts; whilst also demonstrating its relevance for the negotiation of relationships with audiences. In Adami's (2014) analysis of these "sign complexes", she thereby underscores the normalcy of practices of remediation and exemplifies how crossposting "combines with the multimodal affordances of each platform to shape identity, discursive functions and relations with the audience differently in each space" (Adami 2014: 242).

As observation and the integration of user-based data have become more prominent, so, too, more specifically, has the practice of asking participants to talk the researcher through examples of their practices. In such instances the interview is "focused" (Page et al. 2014: 120) through a "speak-aloud protocol" (Page et al. 2014:

121) where participants "talk through what they are doing", either while the researcher is present and watching them engage at the same time (this is what Barton & Lee 2013, for instance, did in the research I referred to above), or after the fact. An example of the latter is provided by Androutsopoulos (2008: 6), who includes the step of "confront[ing] participants with (their own) material" in his list of "practice-derived guidelines for contact with Internet actors", as part of a larger discourse-centered online ethnographic approach. In his research on German-based websites of young hip-hop groups, for instance, he finds that showing members examples of their own or other websites allows him to elicit both their awareness and their evaluation of language style (Androutsopoulos 2008: 8). We also find this kind of "focused interviewing" in the research by Angouri and Tseliga (2010) referred to in Section 4 above, where it is combined with observations of impoliteness and disagreement (i.e., screen-based data). In Angouri and Tseliga's (2010: 65) study, participants were asked to "talk through" threads and postings "where disagreement is explicitly marked", with this combination providing "a more in-depth description of the context of interaction in general and the escalation of disagreement in particular" (Angouri & Tseliga 2010: 66).

6. Looking forward

In reflecting upon language use in social media, it becomes apparent that scholars today study a wide variety of data (including convergent and multimodal data), topics and practices. In drawing attention to this diversity, we need to be mindful of its roots, which lie in first wave studies which began to probe into what makes digital discourse interesting. Whilst such research tended to be deterministic in its overemphasis on technology, it also paved the way to a rejection of technological determinism. In moving away from a perspective which discussed language use as conditioned by the presence or absence of particular technological facets, scholars' understanding of technology also changed. This change remains visible in more recent work which turns to engage again with the role of technology, but this time from an affordance-driven perspective. An example is provided by Tagg and Seargeant's (2019) paper on "Social media and the future of open debate: A user-oriented approach to Facebook's filter bubble conundrum", in which they underscore the centrality of ideologies of particular technologies, in connection with the role both users and technology play in shaping the filter bubble.

A subsequent second wave of research thus brought to the fore an affordance-driven perspective, which acknowledges that the presence or absence of particular features might but does not necessarily lead to particular types of language use. This perspective remains important, as indicated by my brief discussion of Tagg and Seargeant (2019) above. It is only through empirical research on language use as

situated in context that one can ascertain how users are exploiting particular social and technological affordances. Once the stage was set for this kind of engagement with and expansion of context, we find scholars turning to a larger range of topics and data, and to the study of variation in connection with patterns of interaction and identity. These themes are particularly relevant for research on Web 2.0 and hence for social media, given that Web 2.0 platforms explicitly cater to intersubjective positioning and the negotiation of relationships, and given the persistent importance of (multimodal) discourse for these social actions.

Paralleling these developments, variation arises in perceptions of the internet. Initially seen as distinct and separate to offline interaction, understandings of the web as place and a way of being foreground the user and his/her language use as key to the very shaping of the web and its discourse. Such changing perceptions align with arguments suggesting that the online should not be seen as bounded but that online interaction is instead an extension of and hence needs to be explored as situated in the material and physical worlds of participants. These developments have implications for data and methodology. They can be associated with an upsurge in the enhanced observation of the user, and the combination of screen-based and user-based, or blended data, with user-based data progressively consisting of interviews with participants, many of which ask the users to reflect on their own practices. As suggested in this entry, we might characterise this as a fourth wave which does not supplant but rather complements existing scholarship. Yet it does not only complement existing work on language use online; it also offers a contribution to the study of language use more generally.

This is underscored by Tagg's (2016: 60) research on the embedded text messaging practices of Laura, a middle-class woman in rural England. By exploring how "social difference" is negotiated in text messaging interactions, Tagg (2016: 60) argues for the importance of "treating digital and written resources as valid objects of study within sociolinguistics". Whilst it is impossible to predict future directions for research, I can well imagine that this validity will become ever more apparent, with scholars drawing on both online and offline data to study various topics of interest to pragmatics. It will be interesting to see how this pans out; both in journals which are devoted to language use generally yet which have traditionally focused more on offline data (like the *Journal of Sociolinguistics*, where Tagg 2016 is published) and in those devoted to online language use (like the relatively new journal *Internet Pragmatics*).

Looking forward to possible other avenues for future research, I expect we will also see an upsurge in research on multimodality and concurrent with this on (multimodal) discourse across different social media spaces. Some important contributions in this regard have already been made. Adami and Jewitt's (2016) special issue on "Social media and the visual" is a notable example. Against the backdrop of the fact that "[t]he multimodal character of social media communication has been generally neglected and methods for researching it are limited and under-developed" (Adami &

Jewitt 2016: 267), the five empirical papers of the special issue present a theoretically and methodologically varied response. Focusing on a variety of social media spaces and practices, these papers demonstrate variegation in the technological affordances of visual and multimodal resources and the different ways these are employed and made meaningful (Adami & Jewitt 2016: 267). In doing so, some of the articles also engage in what the authors call "[t]ransmedia circulation, appropriation and control", or the ways in which visual artefacts are "assembled, bricolaged, edited, manipulated and reused, from one media to another" (Adami & Jewitt 2016: 266). Via discussion of various artefacts across different spaces and sites, articles in the special issue thus also draw attention to the manifold ways in which such appropriation and transformation can take place, as well as to the social meanings that are thereby engendered and negotiated. Research across social media environments is methodologically particularly challenging. Yet since such movement is central to and reflective of normal uses of social media, I predict that the next years will see enhanced discussion of theoretical implications of such practices and methodological approaches to their study; and that these will have implications for the way we see the boundaries between language and other modalities, and hence also for the way we study language use online.[4]

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Translanguaging pedagogy

Anne Holmen
University of Copenhagen

1. Introduction

Since the turn of the millennium, we have witnessed an upsurge of interest in pedagogical approaches incorporating the concept of translanguaging. A multitude of school projects in multilingual communities in Asia, North America and Europe have been motivated by the concept, and it appears in foreign language teaching and in numerous books addressed to teachers and policy-makers. In addition, translanguaging is a recurrent theme in research conferences and journals within sociolinguistics, applied linguistics and languages-in-education. However, besides the basic understanding of translanguaging referring to "a systematic shift from one language to another for specific reasons" (Coyle et al. 2010: 16), there is neither consensus about the definition of the term nor about the implications of this for teaching and learning in classrooms. As we shall see, the major point for discussion lies in the scope and ambition of the teaching approach: does it build on a radically new and groundbreaking philosophy of education, or does it bring about new inspiration to teaching practices guided by many different philosophies of education?

2. Background

It is often difficult to track the origin of new words that have spread very fast from different sources. However, the literature on translanguaging seems in consensus about the word first appearing in English in Baker's handbook on bilingual education and bilingualism in 2001 (Baker 2001). Here Baker introduces it to translate the Welsh word of *trawsiethu* which refers to a specific model of bilingual education which involves giving input in one language (e.g. English) and producing output in another language (e.g. Welsh). According to Baker, the Welsh researcher Cen Williams coined the Welsh word in his PhD-thesis from 1994 to refer specifically to the situation in Welsh schools, which were trying to revitalize Welsh, but were at the same time dependent on teaching material and teacher education traditionally in English. Similar distribution of languages – with other languages involved – are found in schools in e.g. Greenland and former colonies in Africa, Latin America and Asia. It also bears

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some resemblance to the well-established pattern of "simultaneous parallel code use" (Arnbjörnsdóttir & Ingvarsdóttir 2018) found in higher education in e.g. the five Nordic countries in which textual input to students is in English, but medium of instruction and student assignments are in the local language, and in which a recurrent teaching focus is translating and contextualizing terminology.

From the Welsh schools the word *translanguaging* spread to other types of bilingual education, and it has been incorporated into projects on foreign language learning as well as analyses of classroom practices in multilingual settings and in recommendations for teachers and policy-makers on how to improve school outcome for minority students. The major part of these recommendations stem from English-dominant contexts (e.g. García 2009; Creese & Blackledge 2010; Li Wei 2011), but recent publications indicate that the term has also gained ground in continental Europe, Asia and in the global South (e.g. Zavala 2015; Nikula & Moore 2019; Cenoz 2017; Paulsrud et al. 2017; Prinsloo & Krause 2019). The spread of the concept of translanguaging from Wales to international school development has taken place during a period characterized by "a multilingual turn" (May ed. 2014) within the field of sociolinguistics. Under key terms like "crossing", "polylanguaging", "metrolanguaging", "codemeshing" and "translingual practices", studies have identified the fluid and hybrid nature of speakers' language repertoires and have criticized traditional theoretical assumptions within language research as well as within language teaching that languages must be kept separate (e.g. Blommaert & Rampton 2011; Canagarajah 2011; Otsuji & Pennycook 2011; Jørgensen et al. 2016). A similar understanding of the dynamic and plurilingual nature of individuals' linguistic repertoire has been a cornerstone in frameworks developed under the auspices of Council of Europe for two decades (Coste et al. 1997/2009, Council of Europe 2018) and partly implemented in European language curricula. The multilingual turn and its focus on hybrid language repertoires challenges the monolingualism of traditional psycholinguistic research into language acquisition. However, studies of learners' strategies when communicating in and developing their target language have since the 1990s emphasized the key role of building bridges between old and new language knowledge through activating language experiences, promoting guesswork, using cognates, etc. (Oxford 1990; Griffith 2013). These studies may offer insight into cognitive dimensions of translanguaging and thus provide a link between socio- and psycholinguistic perspectives on language pedagogy as they share a fundamental concern for student autonomy.

In short, the promotion of a translanguaging pedagogy is often referenced as part of a multilingual turn and as an educational follow-up to sociolinguistic studies on translingual communicative practices. Potentially, this may be combined with psycholinguistic studies on processes of language learning. However, translanguaging may also be seen as a response from schools to a wider political debate about the role of linguistic diversity for individuals, communities and societies and thus potentially

embedded in a struggle for social justice (Piller 2016). In the so-called "strong versions of translanguaging" developed by Ofelia García, Li Wei and their collaborators all three aspects are combined.

3. Strong versions of translanguaging

According to García's definition (2009: 45), "translanguaging are multiple discursive practices in which bilinguals engage in order to make sense of their bilingual worlds" and teaching based on this represents "an approach to language pedagogy that affirms and leverages students' diverse and dynamic language practices in teaching and learning" (Vogel & García 2017: 1). García and Li Wei (2013) underline that their approach is more than a teaching technique or a mere scaffolding practice on the part of teachers as they aim at setting up ambitious learning environments in which students' creativity and criticality are supported so that students can push boundaries. In such progressive, student-centered pedagogy, the teachers' role is redefined as the facilitator of learning processes and, in particular, the provider of safe spaces for students to adopt their previous knowledge to new targets of learning (on "safe spaces" see Li Wei 2011). Li Wei and García refer to Hornberger's "continua of biliteracy" (2003) and Creese & Blackledge's "flexible bilingual pedagogy" (2010) for similar approaches to promote student learning in multilingual settings. However, Li Wei, García and their collaborators envisage their version of translanguaging as wider in scope and more general, emphasizing that a translanguaging pedagogy may apply to all school contexts and to minority as well as majority students since "bilinguals, multilinguals, and indeed, all users of language, select and deploy particular features from a unitary linguistic repertoire to make meaning and to negotiate particular communicative contexts" (Vogel & García, 2017: 6). In a number of school-based projects García and her collaborators (e.g. García et al. 2017; García & Klein 2016) have developed teaching practices through carefully designed translanguaging activities as well as through awareness raising and competence development among the teachers involved. Thus, their approach focuses on three interrelated levels of attention: teachers' theoretical stance, communicative practices in the classroom, and students' cognition. Their main concern is how to empower teachers so that they can support students' learning through leveraging their full linguistic repertoire and underpinning their identity.

When García, Li Wei and others subscribe to strong versions of translanguaging in education, they first and foremost underline the theoretical concept of the integrated, fluid and hybrid repertoires of students, as a replacement of monolingualism or bilingual language use where students codeswitch or in other ways deploy elements from two or more separate and named languages. In this, they mark a difference to many

bilingual programs, including programs guided by a so-called " additive" pedagogy in which languages are treated as separate, but interdependent (Cummins 2008). In contrast, García & Li Wei (2013: 13–16) characterize their own approach as "dynamic", drawing on among others the use of the word dynamic in Dynamic Systems Theory (Larsen-Freeman & Cameron 2008) and its focus on languages and language proficiencies continually changing in non-linear and organic ways through interaction between cognitive ecosystems and social ecosystems. Strong versions of translanguaging are not only characterized as dynamic, but also as potentially transformative through their focus on creating "translanguaging spaces where the interaction of multilinguals breaks down the artificial dichotomies between the macro and the micro, the societal and the individual" (Li Wei 2011: 1234). This is transformative because it may break new ground for the individuals involved, but also question language-related hierarchies and stratifications. Prada and Nikula (2018) has taken the transformative power of translanguaging even further by proposing that translanguaging is also transgressive as it can "lead to a reconfiguring of educational spaces through repositioning, empowerment and transformative action" and thus "enable pedagogical strategies which operationalize a diversifying, anti-racist philosophy" (Prada & Nikula 2018: 3).

4. Response to strong versions of translanguaging

The strong versions of translanguaging have been met with some criticism from scholars who see themselves as advocates for the multilingual turn in education, but who do not necessarily "buy the whole package". Especially, the transformative or transgressive dimension has been challenged by sociolinguists who see the step from pedagogical practices dealing with students' multilingualism in the classrooms to the fundamental reshaping of education and society in general as naïve and blind to the reality and power of social stratification and reproduction (e.g. Rampton et al. 2015, Jaspers 2018). One example of the transformative limits to translanguaging is found in the study by Charambolous et al. (2016) from a classroom in Cyprus where the teacher explicitly invited the students to translanguage, but where the teacher's approach produced linguistic insecurities for a group of Turkish-speaking students. The study concludes that the dominant ideology of language hierarchization meant that the students were silenced and non-participating in classroom activities despite the teacher's translanguaging efforts.

Another line of criticism is concerned with the fact that translanguaging scholars tend to ignore the academic purposes of schooling and the highly regulated discourse norms, which the students must also target to succeed. Among others, Canagarajah has raised a critical voice underlining that "most of the studies on multilingual classroom communication have not considered discursive and rhetorical issues. They have

largely interpreted the types of language mixing and social negotiations to demonstrate communicative functionality and metalinguistic competence. We have to consider discourse and rhetorical strategies to judge translanguaging appropriateness and effectiveness and to develop a critical orientation to assessment and instruction" (Canagarajah 2011: 402). He even adds that there is a tendency among multilingual scholars and researchers to romanticize the translanguaging practices of students, with the risk of teachers not scaffolding the students' progression within the content-based language. A similar concern is articulated in the epilogue of the volume edited by Paulsrud et al. (2017). Based on reports from 10 school projects from different local contexts, including foreign languages classes, mother tongue instruction, and minority students' access to general education, the editors conclude that translanguaging is "a useful, dynamic concept" (2017: 229) despite the areas in need of further development they have identified. These include developing classroom practices on how to establish links between students' linguistic repertoires and the majority language(s) of the school, especially in the shape of written academic discourse.

A third line of criticism, partly overlapping with the two other concerns, is raised by scholars engaged in bilingual education with a focus on language maintenance (e.g. Ganuza & Hedman 2017; de Jong et al. 2019). With minority languages, they warn that there is a risk that opening up to flexible linguistic practices may strengthen the overall language hegemony and primarily support the students' use of the majority language. One response to this is to maintain the separateness of the languages involved in designing school programs while at the same time valuing and building on the students' hybrid repertoire as part of their learning profile. In a revisiting of the US model of dual language education, de Jong et al. (2019) distinguish between planning made at macro and meso level of program development and the micro level of classroom interaction including teachers' spontaneous response to students. They see a clear role for translanguaging at the meso level as planned language awareness activities and in enhancing the links between languages and content, but also in individual scaffolding at micro level. Similar suggestions were made earlier by Cummins (2008) under the heading of "teaching for transfer". He suggests a number of bilingual strategies, which teachers can employ in order to allow students to use their full language repertoire as tools for learning, including translation activities and creating texts in two languages. As the other critical voices raised against the strong versions of translanguaging, the advocates for language maintenance and bilingual programs also call for a more inclusive linguistic pedagogy in schools. However, their scepticism as to the applicability of the strong version to all language contexts make them uphold the separateness of languages at some levels of planning and thus prefer a pedagogy based on an additive philosophy rather than the concept of dynamic bilingualism proposed by García and Li Wei. According to e.g. Vogel and García (2017), this makes them adhere to a weak version of translanguaging. However, one may also argue that by leaving out the strong

claims of translanguaging they broaden the case for involvement in translanguaging pedagogies.

5. Emerging issues in translingually informed pedagogies

In general, the spread of the translanguaging concept to contexts outside English-dominant regions and to multilingual and even monolingual educational settings have strengthened the awareness of the role of language(s) for students' learning and identity. It has also emphasized the need to adjust the original teaching strategies based on bilingual education in primary schools to fit diverse groups of students and to include the more academically demanding activities of secondary and tertiary education. E.g., Canagarajah (2013) calls out for a translingual approach to literacy, which entails not only the merging of different language resources to construct meaning, but also of other semiotic resources such as symbol systems, different modalities and ecologies. A similar focus on translingual literacy is at the core of the projects on multimodal identity text-work proposed by Cummins and others to advance student identity as well as their academic achievement (e.g. Cummins et al. 2015). Another, partly overlapping, point of development would be to systematically draw on how to integrate cognitively demanding content with language learning and use, e.g. in the application of the Language Triptych stemming from European CLIL-projects, which distinguishes between language(s) *of* learning, language(s) *for* learning and language(s) *through* learning (Coyle et al. 2010: 35–38). Likewise, studies on academic writing in multilingual settings show that concern for communication of meaning needs to be combined with rhetorical effectiveness and discursive appropriateness (e.g. Canagarajah 2011). According to a recent volume on translingualism in higher education (Canagarajah & Gao 2019), even high stakes academic writing and communication in institutions regulated by restrictive language norms may benefit from a translanguaging approach.

In general, translanguaging scholars attribute a key role to teachers and their teaching practices in developing translingual pedagogies. Thus, there is widespread consensus within both strong and weak versions of translanguaging that the starting-point for pedagogical development lies in the teachers' acknowledgement of the practices of students "shuttling between languages, treating the diverse languages that form their repertoire as an integrated system" (Canagarajah, 2011: 401). Accordingly, the main challenge is how to develop teachable strategies to support and scaffold these practices in the classroom with the aim of promoting student participation and activity. Mary & Young refer to teachers who facilitate affordances for such language practices as "lynchpins of translanguaging" (2017: 117). In some educational contexts, this seems to be advanced through the promotion of fluid and hybrid anguage use in the classroom and in the design of multilingual learning activities (Li Wei 2011;

García et al. 2017). In other contexts, it seems necessary to uphold a certain level of separateness of languages in order to safeguard e.g. minority languages (Cummins 2008; de Jong et al. 2019). A related question, which keeps popping up in the literature, concerns the scope of translanguaging: is it mainly motivated by a wish to improve schooling outcome for minority students and therefore geared towards the kind of translanguaging practices which they bring to school? Or does a translingual approach mean added value for all students, irrespective of their language background, including students who have no previous experience with language contact? Canagarajah (2011) and others suggest that teachers have a range of different roles when tapping into diverse students' dispositions to shuttle between languages, when scaffolding different students' learning paths and language use, and when creating space for diversification and targeting of their language awareness. Teachers who are guided by a philosophy of education (or theoretical stance, García 2009) sensitive to translanguaging, will be more disposed to plan and carry out teaching activities which will bring about more linguistically inclusive classrooms. The literature on translanguaging projects in practice reported in, among others, Cenoz (2017), García et al. (2017), Paulsrud et al. (2017), and Rosiers et al. (2018) bears witness to the reality of developing exemplary pedagogical translanguaging in different contexts. As underlined by Creese (2017: 8), a major dimension of this is teacher involvement in students: "translanguaging is a communication strategy for involving others, […] a way to seek connections where miscommunication threatens. It puts the relational before the linguistic".

A final point to consider is the power of translanguaging to create major transformations of general education. As pointed out by Rampton et al. (2015), Jaspers (2018) and others, the reality of social reproduction in educational institutions with a traditional monolingual ethos will most likely be more powerful than attempts to transform the pedagogy "from below". This may be the case even in educational contexts where the mainstream philosophy of education is a progressive, student-centered pedagogy. According to this line of thinking, teacher involvement and student engagement is seen as crucial to strengthen students' communicative performance and identity, but also to give them better access to academic content and support their reflections and deeper learning. In principle, the student-centered pedagogy applies to all students, in general education as well as in foreign and second language classrooms. However, studies show that the life experience of minoritized students are often ignored when developing student-centered pedagogy (e.g. Bourne 1988; Santa-Ana 2004; Holmen 2011). The future will show whether the current movement of incorporating translanguaging in teaching practices will be a whim of the moment, potentially reduced to advance language awareness in foreign language classrooms, or eventually strong enough to counteract the exclusion of minority students' experiences and all students' complex language identities within mainstream education.

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Handbook A–Z

Code-switching and translanguaging

Rakesh M. Bhatt & Agnes Bolonyai
University of Illinois, Urbana-Champaign / North Carolina State University

1. Introduction

The current scholarship in the sociolinguistics of bilingual language use has been occupied with mainly two empirical realities: mobility and multiplicity. As such, we find ourselves with a myriad of theoretical and methodological shifts: 'turns' – the mobility (Blommaert 2010), multilingual (May ed. 2014), trans- (García & Li 2014; Li 2018), and super-diversity (Blommaert & Rampton 2011) turns. The (re-)turn to multilingualism has unleashed inquiries not only in the sociolinguistics of globalization and all the attendant forms and functions of mobility and complexity implicated in globalization (Blommaert 2010, 2017), but it has also begun to re-assess established paradigms of understandings of bilingual language use. In this chapter we focus on one aspect of the 'multilingual turn' that has to do with a well-attested, very well documented, and rigorously analyzed sociolinguistic behavior characterized with the use (mixing and switching) of elements from two or more languages (or registers, styles, genres, etc.) within a single semiotic frame, described in the literature as code-switching (inter-sentential) and code-mixing (intra-sentential). These terms were used to capture sociolinguistically significant generalizations of routine use of two or more languages as in Example (1) below, where the different roles ('voice') of a 58-year-old, upper middle-class, Kashmiri woman in New Delhi are flagged by switches in languages (Bhatt & Bolonyai 2011: 534).

(1) *Hindi*, Kashmiri, and English switching

1	*mai jab chotii Thii*	("when I was little")
2	*jab meri shaadi hui*	("when I got married")
3	*mujhe bhii yahii lagtaa Thaa*	("I also used to think/feel")
4	ki myaanyan shuryan gos na kashmiri accent gasun	("that my kids should not get the 'Kashmiri accent'")
5	so, I spoke to them in English mainly	
6	(pause) *bas yahii hai*	("That's it!")

The speaker in (1) above starts out in *Hindi* in the role of the narrator (lines 1–3), switches to Kashmiri (line 4) indexing a rather pervasive stance of Kashmiri Diaspora

https://doi.org/10.1075/hop.22.cod2

mothers, and then switches to English to express the community stance that prides itself in English language proficiency associated with (upper/upper-middle) class and caste (Brahmin) identities. Similar patterns of intersection of identity complexes (class, caste, race, region and ethnicity) and code-switching are observed in Rampton's (1995) work on crossing – code-switching across boundaries of race, ethnicity and language communities – as acts of linguistic transgressions among adolescent Asians, Afro-Caribbeans and Anglos in a neighborhood in the South Midlands of England, and in Bailey's (2002) work on code-switching among Dominican American youth. In other words, patterns of multiple language use as in (1) above are neither new nor exotic – they represent expressions of creative linguistic alchemy in mundane bi-/multi-lingual interactions (cf. Bhatt 2008).

There has been, however, a recent surge in studies of bilingual language use mainly in the field of education using the term translanguaging (cf. García 2009; García & Li 2014), understood as "bilingual languaging" (García 2009: 140). This new term "refers to *new* language practices that make visible the complexity of language exchanges among people with different histories …" (ibid: 21). In this chapter, we specifically explore the theoretical and empirical differences between code-switching and translanguaging as they appear to be targeting the same empirical domains. In so doing, we will be guided by the question of what new generalizable knowledge is offered by the introduction of the new term, translanguaging. We will begin with an explication of the term code-switching, providing a historical contextualization of the term and the main theoretical insights and empirical breadth it covers. We then discuss the term translanguaging, focusing on the implications of the various recent iterations of the term and exploring whether the range of empirical domains it covers are different from what has been covered by the term code-switching. We will then conclude the chapter by presenting our assessment of the difference between the terms and end with the claim that the term translangauging is, at best, a rebranding of the term code-switching. This rebranding, it appears to us, may be effective in the contemporary politics of second/bilingual language education as it affords new representations of multilingualism in competing markets of knowledge production; dressing up the traditional paradigms of multilingualism – encumbered in neo-liberal frameworks of global political-economic systems – as a new semiological system containing within itself new mythical dispositions, and a new habit of thought.

2. Code-switching

The study of code-switching – bringing together of elements from two (or more) languages in bi-/multi-lingual interactions – has a long, rich tradition going as far

back as the work of Espinosa (1914)[1] who observed mixing of English words and phrases into the Spanish of New Mexico. Such observations were systematically and rather directly addressed in Barker's (1947) study of bilingual Mexican Americans in Tucson, Arizona; asking, specifically, the motivation behind the alternate use of their languages. The conclusions were quite similar to what is by and large shown to be common social functions of bilingual practice in the U.S. nowadays: the use of Spanish was identified with intimate and family relations, while the use of English was identified with formal social relations and all relations with Anglos. Similar conclusions about the patterned use of code-switching were reached by Gumperz in his earlier studies on Indian multilingualism (1958, 1964), and later (with his colleague Jan-Petter Blom) in Norway (1972).

There soon appeared two research tracks in the study of code-switching: formal and functional. The formal-linguistic interest in code-switching was predicated on the observation that mixers have clear, relatively stable intuitions about what is, and also what is not, a possible (=well-formed) code-switched utterance (Singh 1985). The methodological first step in this research track was to present the formal properties of the bilingual grammar that presumably determines, and perhaps delimits, the range of 'grammatical' code-switched utterances in a given bilingual context. In the last several decades, syntactic constraints, both language-specific and universal, have been proposed in order to delineate the properties of such grammars (cf. Clyne 1967; Pfaff 1979; Poplack 1980; Woolford 1983; Bentahila & Davies 1983; Joshi 1985; Di Sciullo, Muysken & Singh 1986; Eid 1992; Mahootian 1993; Myers-Scotton 1993a; Belazi, Rubin & Toribio 1994; Bhatt 1997; Halmari 1997; MacSwan 2000, 2014; Halmari & Regetz 2012).

It is, however, the social meaningfulness of the pragma-linguistic practice of code-switching that has captured the imagination of most scholars working on code-switching; attempting to understand what determines linguistic choices recruited in bilingual use, i.e., why do bilinguals switch? In this section, then, we provide a detailed description of the various complexes of nuances of the indexical-functional meanings of mobility of linguistic resources in bi-/multi-lingual utterances, code-switching. We do so in the following manner: (i) we first present a quick historical contextualization of the terms, and the different perspectives within which this phenomenon has been studied; (ii) we then offer a precise definition of the term, providing two examples to illustrate the two phenomena the term subsumes: *inter*-sentential code-switching, or code-switching – where the switch takes place external to the clause – and *intra*-sentential code-switching, or code-mixing – where the switch takes place within the

1. Benson (2001) provides a detailed overview of the use of the term code-switching in the United States.

clause (cf. Kachru 1983; Myers-Scotton 1993b); and then, finally (iii) we discuss the theoretical implications of the term for bilingual creativity and code-autonomy.

2.1 Code-switching: A historical contextualization

Back in the era of structuralist linguistics paradigm – long before the recent super-trans-metro-poly-turn of terminological (pre)fixing – bilingualism, and code-switching in particular, was considered to be "the fundamental problem of linguistics" (Jakobson 1953: 561), given its then primary concern with the abstract knowledge of an idealized monolingual speaker of an idealized monolingual community. For Jakobson, code-switching posed a challenge, because he recognized that languages were *not* "in complete segregation" or in "hermetic isolation" (Jakobson ibid.). No matter how hard the boundaries between languages may appear, they are in fact permeable and traversed in communication. Using a political metaphor of his time, he put it this way: "If there is an iron curtain, we know how easily such a curtain [is] penetrated by various forms of verbal communication" (Jakobson ibid.). It is this *old* insight, of course, that gets echoed in some shape or form in much of current scholarship on translanguaging and code-switching. Yet, it is without question that the conceptualization of code-switching has evolved over the decades, and mostly it has done so in lock-step with the broader, contemporaneous analytical-theoretical developments and dominant paradigmatic assumptions within the social sciences, which, in turn, have emerged in reflexive response to a continually changing social world that needs to be freshly and adequately (re)theorized. Thus, unsurprisingly, early definitions of code-switching drew inspiration from structural functionalism. By contrast, the 1980s and 1990s brought a progressive reorientation and a systematic reworking/reframing/reconceptualization of code-switching as both theoretical and empirical insights from ethnography, linguistic anthropology and sociology have opened up new perspectives on code-switching as part of a wider, post-modern/post-structuralist focus on the relationship of language, identity, society, and social meaning. Finally, the last couple of decades, as linguistic effects of contemporary globalization, migration, new technology – the 'mobilities' turn – have become more prominent organizing forces of multilingual behavior in traditionally non-multilingual places such as most of the western world, have foregrounded an expanded view of code-switching/code-mixing that incorporates the creative, complex and flexible use of a broad range of multi-lingual and multimodal semiotic resources (e.g., phonology, orthography, images, etc.) in social actors' repertoires of meaning making.

More specifically, while the notion of alternation between separate language systems as a defining characteristic of code-switching has dominated the understanding of code-switching for the decades after the initial work by Jakobson (1953) and Weinrich (1953), the field turned to focus on a functionally-driven extension of the concept to include "varieties of a language or even a speech style" (Hymes 1971) and to

allow for switching within grammatical units of different scales – within a single language, variety, dialect, code, discourse, conversation, sentence, constituent or a word (e.g., Clyne 1967; Blom & Gumperz 1972; Fishman 1972; Scotton & Ury 1977; Poplack 1980) for the communicative "execution of a speech act" (Di Pietro 1977: 3). It was in fact Gumperz's work (1958, 1964, 1982) in particular that spawned a new research agenda on multilingual communities whose members routinely use its linguistic resources, repertoire range – languages, dialects, registers, styles – to creatively accomplish their socio-pragmatic goals. The socio-pragmatic function of code-switching was rather neatly characterized by Gumperz (1982) as signaling "contextual information equivalent to what in monolingual setting is conveyed through prosody or other syntactic or lexical processes. It generates the presuppositions in terms of which the content of what is said is decoded" (ibid.: 98). In other words, code-switching serves as a contextualization cue, providing an interpretive framework for the referential content of a message (Gumperz 1982: 61) – how the utterance must be understood! – and signaling an act of "doing being bilingual" (Auer 1984: 7).

This insight in Gumperz's work caught scholarly attention that increasingly turned to uncovering the communicative potential and contextually significant variation of code-switching in inter*action*. It has been incorporated in all major sociolinguistic frameworks of bilingual use such as the social-psychological (Markedness) model (Myers-Scotton 1993b; Myers-Scotton & Bolonyai 2001), the political-economic approaches (Gal 1987; Heller 1988b, 1995), and the conversational-analytic approaches (Auer 1984, 1998; Li 1998). While these three approaches to code-switching differ from each other in terms of their paradigmatic stances, they do, however, share one important sociolinguistic-theoretic insight: that code-switching is a skilled and strategic performance that exploits the discreteness of languages while, sometimes, seeming to flout it (Bhatt & Bolonyai forthcoming). Code-switching, as a sociolinguistic practice, is understood uniformly under these three approaches as the juxtaposition or "the alternate use of [elements of] two or more languages in the same utterance or interaction" (Grosjean 1982: 145; cf. also Hymes 1971; Valdés-Fallis 1976: 53; Di Pietro 1977: 3; Scotton & Ury 1977: 5; Gumperz 1982: 59; Auer 1984: 1; Heller 1988a: 1; Myers-Scotton 1993b: vii; Milroy & Muysken 1995: 7; Muysken 2000: 1; Clyne 2003; Bolonyai 2005: 8; Bhatt 2008: 182; Bhatt and Bolonyai 2011: 523; Demirçay & Backus 2014: 31; Kharkhurin & Li 2015: 153). These uniform understandings have produced a rich array of descriptive generalizations in terms of the socio-pragmatic functions that code-switching serves, while also providing important insights into bilinguals' creativity in various modes of local practices.

2.2 Code-switching in action

Keeping in mind the meaning-making potential in code-switching, we offer the following distillation of the term: code-switching is an active, agentive, socio-cognitive

mechanism employed by social actors to produce and interpret the "meaning potential" (Halliday 1985) of linguistic symbols/acts/utterances/features in multilingual interactions (cf. Bhatt & Bolonyai 2011, forthcoming). The data in (2) and (3) below present two specific instantiations of codeswitching: *inter*-sentential (2) and *intra*-sentential (3). In the excerpt (2), Tavis Smiley, the African American host of the Tavis Smiley Show (on PBS), while interviewing the Black American actress Pam Grier switches to African American Vernacular English when voicing the Black community's concern about Grier's portrayal of a lesbian woman on the HBO television drama series, '*The L Word*'.

(2) Dialect switching: Standard English and *AAVE* (Britt 2008)

Smiley: You know as well as I do that gayness, homosexuality, lesbianism, still very much a taboo subject – not as much as it used to be, but still very much a taboo subject inside of black America specifically

Grier: Oh, espe- yeah.

Smiley: And black folk love Pam Grier. Everybody loves Pam Grier, but black folk especially love Pam Grier. What do you say to black folk who say, *Now, Pam Grier you done got caught up in it. Now you done gone too far*.

The switch to AAVE (italicized in (2) above) by Smiley, following all the face-work preceding it (including the use of bare nouns without plural concord: "black folk … love"),[2] is socio-pragmatically significant: Smiley's switch to the community voice – to the voice of the authors of this oppositional stance – enables him to distance himself from the folks in the black community who are unhappy with Grier's lesbian portrayal on the show; and, yet, at the same time claim symbolic (ethnic) solidarity with her by appealing to the shared knowledge of the AAVE community, mitigating the potentially face-threatening nature of criticism (Britt 2008).

While (2) shows how switching flags face-issues, (3) shows an aspect of *intra*-sentential code-switching that is quite pervasive in most studies of bilingual language use: each Hindi switch expresses a culturally-specific meaning, intertextually tied to the Hindu religious texts – the switched text serves as the interpretive context.

(3) English-*Hindi* switching (Bhatt & Bolonyai 2011)

There have been several analyses of this phenomenon. First, there is the 'religious angle' which has to do with Indian society. In India a man feels guilty when fantasizing about another man's wife, unlike in the west. The *saat pheras* around the *agni* serves as a *lakshman rekha*.[3]

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2. Although, as Raj Mesthrie (p.c.) confirms, both 'folk' and 'folks' take plural verbs in Standard English.

3. Source: *Times of India news-brief*, www.timesofindia.com, Oct 12, 2. 2007. *saat pheras:* seven circumnavigations; *agni:* fire (metaphorically, acting ritually as a priest in a Hindu wedding);

In sum, code-switching has long been recognized as a form of social-semiotic practice, a performative act, and a creative strategy through which bilinguals as social agents select and mobilize social-symbolic-indexical resources from their linguistic repertoire for meaning-making, to exploit code boundaries (create, emphasize, blur, or transgress them) and thus to achieve a range of socio-pragmatic effects – to maximize intended meaning faithfully and economically; to construct and negotiate relations of power and solidarity; to manage face needs for self and other, or to make prominent a particular perspective, discursive and identity orientation, a shift in voice, footing or stance (Bhatt & Bolonyai 2011).

2.3 Implications for bilingual creativity and code-autonomy

We begin our explorations of the implications of code-switching for bilingual creativity, a term that Kachru (1985) coined to refer "to those creative linguistic processes which are the result of competence in two or more languages. … The bilinguals' creativity entails two things: first, the designing of a text which uses linguistic resources from two or more – related or unrelated – languages; second, the use of verbal strategies in which subtle linguistic adjustments are made for psychological, sociological, and attitudinal reasons" (ibid.: 20). While the term was used mainly with reference to contact literatures in English, we will show how this term is able to accommodate other systemic-semiotic structures in which creativity, in the sense of Kachru, plays a constitutive role. The multilingual entanglements of English language use in late-modernity (Bhatt 2008), the complexity of linguistic repertoires in mobile times (Blommaert 2013; Pennycook 2017), and the rise of contemporary urban vernaculars (Rampton 2011; Li 2018), all point to the *creative instinct*: the ability of social actors to mobilize their repertoire resources to exploit the indexical potential of text/utterance design (Bolonyai 2015, in prep.; Bhatt 2019).

The data in (2) above clearly shows how 'resource-mobility', as a micro-discursive practice, mediates between situated language use and the on-going macro-discursive, socio-political events, and, more to the point of Example (2) above, enables social actors (Smiley) to exploit the creative potential of their repertoires in such a way that the indexical *meaning* mobilized in the *context* (of the interview) is, ultimately, shaped by the dynamic of the *text* (cf. Bhatt & Bolonyai forthcoming). This, we argue, captures firmly the spirit of bilingual's creativity, and yet it also points to the other dimension of the implications of code-switching: code-autonomy. The switch to AAVE by Tavis

lakshman rekha: the line one doesn't cross – a reference to an episode in the Hindu text, Ramayana, where Lord Rama's younger brother, Lakshman, draws a circular line (*rekha*) around Rama's wife, Sita, that had the supernatural power to destroy anyone crossing that line, and thus protecting Sita, who was going to be alone in the forest.

Smiley, in (2) is audible only in terms of its syntax that contrasts in subtle but significant ways with the syntax of Standard English. This difference between the two dialects – as separate linguistic systems – is *noticed* by the speakers who control them as they develop "adequate enough code-switching skills" to make themselves intelligible to those who "carry on the affairs of the English-speaking people" (Smitherman 2000: 2). What is most remarkable is that Smitherman herself uses her code-switching skill rather seamlessly, but deliberately, while recalling her friends who were not able to enter the (mainstream) System: "Some of them was my girls that I used to kick it wit on the corner of 47th and Wabash in Chicago, one of whom was killed while out there hustling on Chicago's Southside. Among the others who have fallen was the Brothas me and my girls sang doo-wap background for in the songs that was gon help them escape the broken-down front porches of Joseph Vampau Street in Detroit" (ibid.: 3). The movement between the two linguistic systems – between the two morpho-syntaxes, of AAVE and Standard English – allows her voice to be heard, to be intelligible, to (dis)align with the (dominant) System.

We close the discussion of this section with the most striking evidence of multimodal bilingual creativity qua complexity as offered in the Burger King street advertisement in Budapest, see (4). This ad shows a creative, playful mix of English and Hungarian – with orthography and phonology crucially invested – in a stylized form of 'expressive transgression' that appears to create an effect of non-discreteness of language boundaries. The data of particular interest to us in this ad is *XtraYO*, a creative hybrid mix of English and Hungarian. While visually XtraYO doesn't look Hungarian, it sounds Hungarian: English YO invokes its homophone in Hungarian, JÓ ("good"), pronounced as YO, thus creating a cross-linguistic pun where "XtraYO" comes to be read/heard "XtraGOOD".

(4) Hungarian-English Mixing

The double-meaning of the pun, in (4), however, is available only if the different linguistic-semiotic archives are accessed – at the phonetic and orthographic levels. That is, in order to fully appreciate the meaning of this creative trans-modal hybrid, one has to be able to trace it to its discrete, language specific, written and phonological elements: YO – in the context, also an interpellation – the voice of American "cool" (as a slang expression of excitement and cool "addressivity" (*à la*Bakhtin 1986), merges in a heteroglossic fusion with Hungarian JÓ ("good") and thereby inter-discursively imbues the Hungarian word *jó* with a new symbolic connotation and status. The ad thus represents a ludic encounter of two archives as global brand Burger King's iconic bun gets playfully localized and valorized in a way that is distinctively tied to Hungarian.

3. Translanguaging

Translanguaging is a relatively new term and it refers to "*bilingual languaging*" (García 2009: 140, author's emphasis). Languaging, to be sure, is purportedly a move away from the Cartesian notion of language as a system of reified abstractions to a notion of language-as-action (cf. Harris 1981; Taylor 1986, 2017; Love 1990; Becker 1991). This shift from language "as something accomplished, apart from time and history" to *languaging* "as an ongoing process … something that is being done and reshaped constantly" (Becker 1988: 25) is ostensibly one of the major theoretical shifts in the translanguaging proposal of bilingual language use; a view, however, familiar to us from the sociolinguistic and linguistic anthropological studies of the 1950s, 1960s, and 1970s (cf. Firth 1957; Gumperz 1958; Labov 1972; Halliday 1973; Hymes 1974; Ferguson 1978; Goffman 1979). These scholars insisted on a privileged focus on language *use* in linguistic inquiry to productively capture the significant generalizations of the (indexical) distribution of variation in mono-/bi-/multi-lingual contexts. These studies have persuasively argued that (i) language is a social semiotic system, (ii) language is not static, it is dynamic, (iii) language is not fixed, it is fluid, (iv) language is not sealed in hermetic boxes, it is open, its borders are porous, and, relatedly (v) language habits are constantly in a state of flux; cf. for instance, the notion of "dynamic synchrony" (Labov 1972).[4]

The *bilingual languaging* notion of translanguaging is further clarified in later works of García and her colleagues. According to Velasco and García (2015: 7),

4. It may be worthwhile to remind readers of the famous statement of Labov that has been universally accepted by sociolinguists of all stripes and colors: "I have resisted the term sociolinguistics for many years, since it implies that there can be a successful linguistic theory or practice which is not social" (Labov 1972: xiii).

"[T]ranslanguaging does not view languages of bilinguals as separate linguistic systems." This view is further explicated in García and Li (2014: 21):

> …translanguaging does not refer to two separate languages nor to a synthesis of different language practices or to a hybrid mixture. Rather translanguaging refers to *new* language practices that make visible the complexity of language exchanges among people with different histories and understandings that had been buried within fixed language identities constrained by nation states.

Translanguaging assumes that bilinguals have one linguistic repertoire (their idiolect) from which they select features strategically without regard for socially and politically defined language names and labels (García et al., 2012; García & Li 2014; Otheguy, García & Reid 2015, 2018; Li 2018). And, finally, all these authors argue that "[t]ranslanguaging differs from the notion of code-switching in that it refers not simply to a shift or shuttle between two languages, but to speakers' construction and use of original and complex interrelated discursive practices that cannot be easily assigned to one or another traditional definition of language" (García & Li 2014: 22). In sum, the main proponents of translanguaging make the following explicit claims:

(5) Claims of translanguaging accounts
   a. translanguaging is a NEW language practice,
   b. the bilingual's repertoire does not consist of two (or more) separate languages (or linguistic systems),
   c. the myriad linguistic features mastered by bilinguals occupy a single, undifferentiated mental grammar, their idiolect, and
   d. code-switching is simply a shift or shuttle between two named languages.

3.1 Translanguaging and the paradigm trap

In this section, we show how the claims of translanguaging (5a–d) do not meet the empirical desideratum or analytic rigor to qualify as an independent theoretical construct that is separate from, and/or superior to, the construct code-switching. With respect to claim (5d) above, we merely note here that translanguaging scholarship grossly mis-represents and over-simplifies what code-switching refers to – we have already discussed the phenomena of code-switching in theoretical and empirical detail in section 2 above. With respect to claims (5a–c), we present data that García and Li (2014: 92, 115–116) have used to illustrate an instance of translanguaging. The data originally appeared in the Gujarati-English bilingual study discussed by Creese and Blackledge (2010), also offered as an illustration of translanguaging. In the data, the head teacher is speaking to an audience of parents, students, and teachers assembled at the end of the day at a complementary school in Leicester, UK.

(6) *Gujarati*-English Translanguaging

Mixed Gujarati-English	**English translation**
… what's going to happen here Jalaram Bal Vikasma? Holiday nathi … awata Shaniware apne awanu chhe. we're coming here awta shaniware … [several students put up their hands] … Amar? … [picks on Amar or Amit to reply] … Amare kidhu ne ke GCSE presentation chhe … awanu chhe. I know that we're finishing on Friday in mainstream school, pun aiya agal badhayne awanu chhe … I know, it's a surprise. Khawanu etlu fine chhe, K warned me today… it's something all of you will like, teachers will like … something for all of us…. [points to the class sitting in front of her] a balko a varshe GCSE karwana chhe etle next year a badha awshe mehman thayne, mota thayne! … we're not going to take much time, 'cause I've got few other things to tell you as well …	… what's going to happen here in Jalaram Vikasma? *It's not a holiday, we've to come here next Saturday* … we're coming here *next Saturday* … [several students put up their hands] … Amar? … [picks on Amar or Amit to reply] … *As Amar said there's* GCSE presentation, *you have to come*. I know we're finishing on Friday in mainstream School, *but you all have to come here* … I know, it's a surprise, *lovely food*, K [a parent] warned me today, it's something all of you will like, teachers will like … something for all of us … [points to the class sitting in front of her] *these children are doing GCSE this year so next year they will come as guests, all grown up!* … we're not going to take up much time 'cause I've got a few other things to tell you as well …

While discussing the data in (6) as an instance of translanguaging, Creese and Blackledge (2010: 108) claim that (ia) **both languages** (Gujarati and English) are needed simultaneously to convey the information and (ib) **each language** is used to convey a different message; (ii) it is **in the movement between two languages** that the teacher (SB) engages with her diverse audience – the teachers, children, and parents have different level of proficiency in both Gujarati and English and the teacher uses **her languages** to engage her audience; (iii) however, her "languages" do not appear separate for her in the social acts but rather a resource to negotiate meanings and include as much of the audience as possible. They conclude that the teacher's utterances "are examples of translanguaging in which the speaker uses her languages … Gujarati and English are not distinct languages for the speaker in the context …" (ibid: 109). In other words, the speaker is claimed to move between languages – the switch between English and Gujarati as evidence of that – as an act of linguistic accommodation (audience design), but then the authors claim, without evidence/proof, that the speaker appears not to have the languages separated, as she is accommodating to, and signaling identity-alignments with, parents, students, and teachers with varying proficiency of Gujarati and English. The claims Creese and Blackledge make, and the conclusion they draw, present the clearest evidence of the paradigm trap: the focus on languages (claims ia and ib) and the movement between them (claim ii) can theoretically coexist with claim (iii) (that languages are not separate) so long as the conclusion

is consistent with the assumption of translanguaging, that is, that the two languages of bilinguals are not distinctly coded in any way. It is the strength of the paradigm trap – the normalization effected by "expert discourse" – that allows the analyst to comfortably gloss over explicit contradictions (cf. Bhatt 2002).

Returning to the specific claims of translanguaging, (5a–c): the data in (6) above certainly doesn't qualify as a "new language practice" (5a) – the works of Gumperz (1982), Auer (1984), Heller (1988a), Myers-Scotton (1993b) have long presented similar, and even more complicated, bilingual data with much more nuanced and rich analyses. Furthermore, consider data (1) presented above, compared to (6), where three languages are used in a complex manner within one semiotic frame – (1) is an instance of creativity and complexity observed in routine interactional practices in multilingual complexes, not a "new" language practice. With respect to claims (5b and c), the data in (6) leads us to a familiar paradox, observed by Seargeant and Tagg (2011: 504):

> Feature identification uses a comparative approach between different notional systems of linguistic patterning, and so reference to different codes, varieties, styles and 'modes' is necessary despite the fact that, …, a central concern … is the problematisation and complexifying of just these conceptual categories.

This paradigmatic paradox appears, rather unproblematically, in most works on translanguaging authored by García and her colleagues (cf. García et al. 2012; García & Li 2014; Otheguy et al. 2015; Vogel & García 2017). In Li's latest work on translanguaging (2018), we notice the appearance of the same, language-identification paradox in his description of the exchange between a Chinese Singaporean and an old family friend (ibid.: 13) – seven languages are identified as being used in the short excerpt, which is "typical of the everyday speech of ethnic Chinese Singaporeans" (ibid.: 14). He is correct to note the "typicality" of these patterns in everyday speech in multilingual complexes: this is precisely what Gumperz (1964) had taught us in terms of the "speech economy" in community multilingualism – a methodological framework that studies all the codes used in the linguistic community regardless of language names and genetic affiliation and relates them to social contexts of use in order to understand the magic of multilingualism. Li (2018) deals with the complexity of multilingualism using the translanguaging lens, but is unable to overcome the paradigmatic paradox:

> "in everyday social interaction, language users move dynamically between the so-called languages, language varieties, styles, registers, and writing systems, to fulfill a variety of strategic and communicative functions. *The alternation between languages*, spoken, written or signed; *between language varieties*; and between speech, writing, and signing is a very common feature of human interaction". (ibid.: 26, italics added)

This paradox, the focus away from languages to linguistic features (*à la* Jørgensen 2008) and identifying them in acts of translanguaging as belonging to specific languages

(with specific indexical values/meanings in a given context), leads the analyst to a theoretical cul-de-sac, highlighting the terminological quandary of translanguaging.

4. Conclusions

In this chapter, we have placed under critical and reflexive examination the theoretical and empirical underpinnings of the concepts of code-switching and translanguaging. Our overview of the study of code-switching within its wider sociological and historical contexts has reasserted that code-switching was introduced as a theoretical construct to capture the various complexes of social-indexical meanings mobilized in bilingual language use. As the theory of language evolved, from structuralist to post-structuralist and beyond, so did the concept of code-switching – from alternation between languages (Gumperz 1964) to "acts of identity" (Le Page & Tabouret-Keller 1985) and socio-cultural practice (Gal 1987; Heller 1988b; Myers-Scotton 1988) to resource mobility (Bhatt 2008) and to a theory of optimization of bilingual language use (Bhatt & Bolonyai 2011). The different methodological frameworks following different tropes of sociolinguistic ecologies have been collectively successful in unleashing a theorized understanding of the miracle of mundane multilingualism, the bilingual creativity.

However, as the socio-linguistic realities change over time, the methodological imperatives change accordingly, which quite possibly requires a new toolkit to deal with new linguistic practices that have evolved. However, translanguaging as a term to capture the practice of bilingual languaging offers no new insight that was not already discussed in the code-switching literature (cf. especially Bhatt & Bolonyai forthcoming). In fact, in his most recent attempt to coherently present the concept of translanguaging, Li (2018) concedes as much: "For me, Translanguaging has never intended to replace code-switching or any other term" (ibid.: 27). That is indeed a welcome concession from one of the main authors of the term, although he mentions that the notion of translanguaging challenges the code view of language (ibid.: 27). We close this paper by briefly discussing the notion of code in code-switching.

Code, as it has been discussed in the code-switching literature, refers to any linguistic variety used in a community "regardless of language names and genetic affiliation" (Gumperz 1964: 208). Thus, for instance, code for Gumperz could, theoretically, include American Sign Language, Appalachian English, and Standard Southern American English as part of the "code matrix" of a deaf community in Cedar Falls, North Carolina – so long as they are all 'functional' (=used purposefully) in the community. In fact, Li (2018) offers a similar view in his discussion of translanguaging, quoted above but worth repeating a part of it: "language users move dynamically between the so-called languages, language varieties, styles, registers, and writing systems, to fulfill

a variety of strategic and communicative functions" (ibid.: 26). To be sure, Gumperz (1964) even argued for a "code-switching style" – Punjabi-Hindi code-switching – to be part of the code matrix, a style that fulfils certain social functions, although his (1964) study was preliminary and exploratory. Blommaert's (1991, 2014) discussion of Campus Kiswahili is a more nuanced discussion of the code-switching style: a register that has a specific exclusive identity function and "involves mixing *standard* varieties of both Swahili and English into a pattern that is syntactically and pragmatically coherent …" (Blommaert 2014: 112, emphasis in original). Finally, we believe that the audibility of switch discussed above in (2), with the associated indexical meanings, is possible only because the English words are strung together in the grammar (phonology and morpho-syntax) of the AAVE code.

We end our paper with a caution: success of sociolinguistic theory depends critically on making explicit and clear our analytic terms, and it is the responsibility of the analyst to show how new terms, when severely needed, advance our knowledge, and capture sociolinguistically significant generalizations possible ONLY with a (theoretical) shift in perspective. We surely need and encourage continued engagement in critical rethinking of our conceptual framings and reflexive reassessment of our analytical toolkit, while making sure that the neologisms we introduce provide us with both inspiration and analytic rigor for moving our field forward.

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Event representation

Bracha Nir
University of Haifa

1. Introduction

Events are fundamental to human experience. As human beings, we conceptualize our experience of the world around us – as well as our internal sensations and experiences – in terms of events. What does your morning or evening look like? What do you do at work, with friends, with family? What is your preferred way of celebrating a birthday, and what is your least favorite thing to have happen? These and other situations or eventualities make the fabric of our daily life. We perceive them, we participate in them, we interpret them, and we can talk about them from various perspectives.

Events can be analyzed based on their properties. These typically include the degree of change they involve (internal change, as in the case of dynamics and continuity, or external change, as in the case of transitivity and causality), their degree of boundedness (whether and how they extend across space and time), the basic (or prototypical) actions they include and their homogeneity, the duration of the event, and the participants involved in each type of event. The linguistic characterization of events based on each of these (as well as other) properties is dependent on their construal – the choices we make in conceptualizing an eventuality and reporting on it.

Eventualities and their construal (Verhagen 2007) have been widely recognized as basic to meaning-making processes. They are, however, not only part of our semantic knowledge. In Developmental Psychology, the notion of Event Knowledge has been suggested as a socio-cognitive structure that organizes, motivates, and explains real-world behavior (as summarized in Nelson 1999). In this sense, they are part of our pragmatic knowledge-base. The following discussion focuses on studies from developmental psychology, on the one hand, and linguistics, on the other. It is also briefly discusses studies from other sub-domains of the humanities and social sciences that deal with the perception, processing, interpretation, and representation of actions, activities, and states – as well as the entities that take part in these situations. The volume edited by Bohnemeyer and Pederson (2011) brings forth the state of the art in the study of the representation of events and its relation to language and cognition; the volume edited by Shipley and Zacks (2008) cover the main questions that motivate studies on the perception, segmentation, and memory of events; Zacks and Tversky (2001) and the volume edited by Higginbotham, Pianesi and Varzi (2000) includes studies in logic and event semantics from various perspectives.

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2. The development of event representation

One of the issues dealt with when taking a developmental perspective on cognition is the question of how semantic knowledge emerges and is then organized throughout the lifespan. Katherine Nelson's Event Representation theory (e.g., 1978, 1986, 1999, 2007) proposes that as humans, we are pre-destined to represent our experience. This phylogenetic perspective on cognition is translated into Nelson's various studies on the ontogenesis of socio-cognitive abilities, showing that these emerge and develop from early infancy. Such ideas go hand in hand with extensive research in developmental psychology revealing that specific understanding of object properties (e.g., permanence) and behavior (e.g., continuous motion in space and time), as well as the differentiation between animate and inanimate entities emerges only a few months after birth (Spelke et al. 1992).

Nelson's model, which draws insights from Schank and Abelson's (1977) Script theory, highlights the function of representations of events (defined as temporally organized sequences of actions occurring within a bounded activity) in recalling and reporting on eventualities, as well as in explaining the children's behavior in light of novel instances of an event. She shows that very young children can tell you what they expect would happen at their birthday party, and they become easily confused and even frustrated if their most favorite feature of the event (a cake, a present, colorful balloons) is absent. These representations of course change with experience; an important part of development is the child's growing ability to include alternatives and variations in the event sequence (e.g., Kuebli & Fivush 1994). Even as adults we continue to re-represent our experience. An easy example would be your own preferred way of celebrating a special occasion (going to a meaningful place, eating at a restaurant, taking a vacation abroad), and how those preferences compare to five, ten, and twenty years ago.

This conceptual structure is not only individual, but also social. Take for example the notion of BREAKFAST. You might not be aware that this concept, so basic and so familiar, with its prototypical features – sitting at a kitchen table, eating particular types of food, typically before the main activities of the day begin – is a relatively late development in our history. The word is not attested in written documents before the middle ages, its first usage is recorded in monastic life (breaking the fast of the night), and its development into the first meal of the day is linked with concepts of culture and status (whether one eats something sweet or salty, something hot or cold, something refined like tea or chocolate in contrast with less prestigious drinks and foods). A person who is used to having breakfast regularly, with specific favorite options readily available every day, might experience the same frustration that a child might experience on her birthday if that person's regular breakfast options are not available

when traveling from one country to another, for example. However, while as a child we might insist on eating a particular type of cheese or cereal, as an adult we are more willing to accepts variation – such as tea instead of coffee, or vice versa.

Event representations, which emerge with experience and are constantly re-structured and re-organized, are seen as essential for conceptual and linguistic development throughout life. Once general script (or event) knowledge is well in place, it can be integrated with specific knowledge on particular events, and allow for the use of complex language as part of our discursive abilities. Importantly, we seem to mentally categorize the world not only based on the properties of objects and organisms, but also based on the activities of these entities in space and their spatial and temporal relations. In fact, entire scenes can also be conceptualized as such spatial and temporal categories (Tversky 1986). Even before the end of their first year of life, infants can differentiate in their reasoning between human action and object motion (Woodward 1998). At the same time, very young infants are able to discriminate between causal and non-causal events, as a function of the objects that participate in these events (Oakes & Cohen 1990). As summarized by Vandepitte (2002), causality is considered as one of the major concepts representing our experiences with the world around us. These, then, are abilities that are central to human cognition, and they constrain the way knowledge – including linguistic knowledge – is learned (Karmiloff-Smith 1992). These categories are most typically encoded in forms that evolve into verbs, although as various studies show, specific verb-like forms emerge for specific events, and parts of other events can be represented very early on by words that cannot be grammatically defined as verbs (see Tomasello 1992).

According to Nelson (2007), from the moment we are conscious of our experiences, we integrate the different emerging models of the world (as constrained by different types of influences), and organize these models in our cognition. Nelson also follows Donald's (1991) evolutionary hypothesis regarding the functionality of our cognitive system. The idea is that modern cognition is hybrid in nature, as our minds can flexibly combine episodic, mimetic, narrative, and theoretic representations. Nelson's proposal can be summarized in the following points: (1) under the assumption that cognition develops and changes, event memory is basic to human development (in both ontogenesis and phylogenesis). (2) The socio-cultural and linguistic milieu of the individual is fundamental to the contextual interpretation and understanding of the remembered events in contrast with the changes encountered in new experiences. In other words, grammatical structure is the re-represented social construct of a shared cognition. (3) The information that is continuously re-organized is represented in multiple inter-connected and layered structures. (4) Both language and narrative consciousness (Bruner 1987) impact this developing organization. Language itself is thus a significant part of our experience with the world. The grammatical structures we

use and extract from the stream of speech organize and constrain our conceptualization of the events we witness or in which we participate. This point is further discussed below, as part of the 'Thinking for Speaking' process suggested by Slobin (1987, 1996).

3. Event representation and linguistics

Studies in psychology and in psycholinguistics focus much of their attention on processes of segmentation, selection, or structuring of representations, or on the mechanisms that allow conceptual knowledge of events to map onto grammatical structure. In linguistic theory, focus is on the encoding of events in grammatical structures (see Bohnemeyer & Pederson 2011; Croft 2012, 2017; although see Hopper 1995, 1997 for commentary on such studies).

The notion of Event Representation is closely related to Fillmore's (1976) Frame Semantics as a model for representing meaning at the level of the word, of syntax, and of text (see also Petruck 1996). The contexted experiences on which the meaning of words depends and which allow us to interpret utterances as well as extended discourse are in fact event representations. As Fillmore (1987) explains, his own development of the notion of Frame was independent of the theoretical advances in cognitive and developmental research. His idea was to provide a framework in which all linguistic forms are used to communicate the speakers' conceptual structure.

The linguistic literature in general, and particularly cognitive linguistics, can be said to deal with various aspects of event representation. Take, for example, the extensive body of research on Parts-of-Speech categories: Nouns are typically construed as referring to objects and entities, while verbs are viewed as encapsulating events or situations. This distinction reflects what can be viewed as cognitive "wiring" to search for and encode the differences between event participants on the one hand and activities, states, and change-of-states, on the other. When asked to provide a noun, you might say *chair*, *book*, *flower*. When asked to provide a verb, you might say *sit*, *read*, *grow*. However, as shown by Hopper and Thompson (1984), nouns and verbs are not fixed concepts: in the same language (and in different languages) these categories can lose their categorial status, depending on their semantic meaning and discursive context. Taylor (1995) discusses the extensive body of work attempting to identify semantic properties of nouns (including level of concreteness vs. abstractness), and illustrates how these can in fact be related to a prototype approach to categorization (Rosch et al. 1976), the same notions that are basic both in Nelson's conceptualization of Event Representation and in Fillmore's Frame Semantics. Works on word semantics thus assume that the meaning of nouns or verbs reflects speakers' prototypical knowledge of the concepts (Hopper & Thompson 1984; Givón 1986). As shown by Lakoff (1986), this prototypical knowledge is not only cognitively but also culturally motivated.

Casati and Varzi (2015) in their entry in the Stanford Encyclopedia of Philosophy illustrate ways in which the notion of events has been extensively examined via its representation in language. Their review particularly focuses on how events relate to or differ from other categories (objects, facts, properties, times), and how their properties are reflected in the various well-known works on types of verbs, as in the studies on *states, processes, achievements*, and *accomplishments* (Bach 1986; Vendler 1967). Of particular relevance is again the distinction between events and objects or entities. This has been a major topic of study in philosophy, logic, and linguistics. Quine (1985), for example, treats events and objects as abstractly one and the same, even though objects are typically viewed as stable and bounded while events are viewed as largely unstable and unbounded (or potentially bounded, cf. Croft 1991). This is also reflected in the fuzzy boundaries of linguistic categories such as nouns and verbs. Consider the following examples from Hebrew, a language where morpho-lexical categories are largely distinctive based both on inflectional and derivational processes (Berman 2017):

hitkatvut 'correspondence' – Nominalization (hitCaCCut + K.T.B.)
lehitkatev 'to correspond' – Infinitive (lehitCaCeC + K.T.B.)
mitkatev 'correspondent/(is) corresponding/corresponds/' – Participial (mitCaCeC + K.T.B.)
hitkatev 'corrsponded' – Inflected verb form (hitCaCeC + K.T.B.)

The Hebrew tri-consonantal root K.T.B. denotes scenes involving various aspects of the concept WRITING. This root can be integrated into different vocalic patterns, here exemplified by the reciprocal HICCACEC *binyan* pattern and its derived nominalization HITCACCUT. Each of the four words above represents a different aspect of the derived concept CORRESPONDENCE. The nominalization *hitkatvut* and the infinitive *lehitkatev* refer to the same general activity of corresponding, albeit with a different aspectual perspective. The first, however, is morphologically a noun, while the second is viewed more typically as a verb, or as an intermediate category between nouns and verbs.

Such fuzzy boundaries are apparent not only between nouns and verbs, but also within the lexical categories. The inflected verb form *hitkatev* denotes a specific activity that was performed by some entity in the past. The meaning of the participial (termed *beynoni*) form *mitkatev*, however, can only be determined based on context. Thus, while the morphological systems of Hebrew allow speakers to distinctly identify and use these word classes, there is still much ambiguity in both form and function.

The examples from Hebrew also illustrate how events – or at least properties of events – can be linguistically represented not only at the lexical level but also at the level of morphology. The derivational verbal patterns of Hebrew are identified with concepts such as transitivity, event dynamics, causality, inchoativity, reciprocity, reflexivity, etc. (Berman & Nir-Sagiv 2004; Mandelblit 2000). Moreover, our experience with

the world is generalized by systems of grammatical forms encoding such notions as the distinction between the time of speaking versus the time in which the situation took place (before, after, or at the same time as the time of speaking) as well as a point of reference (TENSE; see Klein 2009), the distinction between different temporal phases of the eventuality, such as its beginning or end (ASPECT; see Croft 2012), and the distinction between various subjective mental and emotional points of view on the eventuality (MODALITY; see Narrog 2012). These systems, whether morphological or syntactic, serve to convey information on our various perspectives relating to states, processes, and transitions we observe, participate in, and make happen. They are grammaticized construals of various situation types (Croft 2012, 2017), a notion elaborated on below.

As previous studies have shown, events can be linguistically represented at the level of syntax – either in phrases or in clauses. Thus, a noun phrase headed by a nominalization such as *The destruction of the city* can express a particular event, as can adverbial phrases such as *upon her arrival.* These instances pose difficulties when we attempt to classify phrases as opposed to clauses: while clauses are typically viewed as carrying the semantics of events (e.g., via predication), such nominal and prepositional phrases can also serve the same function. Here, too, there are fuzzy boundaries. Studies on discourse, however, show that verbal clauses are more prototypical devices of representing events in narrative texts as compared to nominal clauses or noun phrases, which are more prototypical of non-narrative texts (Berman & Nir-Sagiv 2004).

The relationship between event representation and syntax is also illustrated by the extensive work on Construction Grammar, tying Frame Semantics and syntax (see for example works cited in Petruck 1996). A prototypical case is that of argument structure constructions, such as the Transitive construction and the Cause-Directed-Motion construction, among others (see Goldberg 1995, 2006; Croft 2012). According to this view, argument structure constructions encode the relations between participants in an event type. Events are thus not only encoded by the predicate, but by the syntactic arrangement and morphological indexing of the entire construction. As shown by Croft's typologically-motivated work (1991, 2001, 2012), studying how languages encode these relations suggests that grammatical relations are specific to constructions, and are not a global or universal phenomenon. In order to understand how grammatical constructions work, we need to begin our investigations with mapping event-specific participant roles (Croft 2012: 25).

In this view, understanding any utterance requires us to access our understanding of basic event types. These involve the notions of motion and direction, temporal order, impact, force, and causation, among other concepts. Our perception and interpretation of these concepts are of course dependent on our particular human minds and bodies – the way we see, the way we move, even what we eat and how we eat it. How these constraints operate in our cognition is still largely an unknown – the postulated

cognitive mechanism that is often termed 'the Conceptualizer' is a black box, and has been the focus of studies on the relationship between language and thought (Jackendoff 1990; Levinson 1996; Slobin 1996). The conceptual structure is also dependent on our specific experience in the world – where we were born, what our daily routine looks like, how our personal preferences and sensitivities constrain these routines and allow us to deal with unexpected or significant changes to these routines. Prototypical event knowledge is thus something that is based on what the world around us has to offer and what is subjectively significant to us. This naturally raises issues with respect to how we bridge the gap between our subjective experiences and those of others, and thus communicate with one another (Dor 2015).

It is only logical to assume that the conceptual structures of any given event are much more unstable and readily changeable than the conventional linguistic behaviors that encode these structures. From this follows the well-studied idea that the formal properties of the linguistic system, as they are established socially and individually, also have an impact on the way events are represented. An important venue for research is thus the relationship between the conceptual structure of the event as it is represented by an individual or a group of individuals and the linguistic structures that are used by the same individuals to represent the same event.

4. Event representation and event construal

The study of how linguistic structure impacts the conceptualization of events is the focus of research on event construal in discourse (see Croft & Cruse 2004; Verhagen 2007). The notion of construal thus refers not only to the mapping of experience into linguistic expression, as discussed above, but also to the way speakers (and writers, and signers) make use of the linguistic devices at their disposal in order to convey their representation of an event to an interlocutor. According to Slobin (1987), utterances should not be taken as direct reflections of reality nor of the representation of an event. Rather, in the process that he terms 'Thinking for Speaking', speakers select the linguistic devices that are available in the language and that fit a particular aspect of the representation of the event which they wish to convey. It is necessary to differentiate between the constraints of reality, society, mind, and language on how any given event is represented (and re-represented) in language, and the constraints on how an event is represented *with* language.

A prototypical way of representing a specific event in discourse is the narrative text. According to Bruner (1987, 1991), narrative is a principle mental construct that allows humans to engage in constructivist "world-making". As Nelson suggests (1993, 1999), such narrative thinking emerges in middle childhood. In their full-fledged form, narrative texts are temporally and causally constrained, they are organized schematically

in a typical Orientation-Episode-Coda structure interleaved with narrative evaluation (Labov 1972), with generalized action structures characterizing the episodes (Shen & Berman 1997) that include reportable as well as ordinary events (Labov 2004, 2006). Thus, narratives are a way to represent an event that is also constrained by the particular textual schema, in itself a complex mental construct. As shown by Nelson and her colleagues, the ability to produce a narrative text is dependent on the development of generalized script knowledge – the temporally-organized, routine-based event schema that includes specifications of interchangeable actions and variable participants, which can be applied across eventualities and situations.

Berman and Slobin's (1994) seminal volume explores different ways of relating the quest of a boy and a dog in search of an elusive frog. The dimensions of construal specified by Berman and Slobin include selection of topic, of loci of control and effect, of event view, and of degree of agency (p. 517). As they show, the representation of a particular event can be conveyed in an array of options.[1] This and the myriad studies that follow the same methodology explore the issue of construal from a cross-linguistic and developmental perspective. Importantly, Berman and Slobin's methodology relies on comparing the productions of narratives based on the same event, and thus its representation and construal across languages and age-groups. This allows researchers to investigate similarities as well as distinctive patterns of usage between individuals and between groups of speakers, in the same overall socio-cultural context and across different contexts. Reliance on the by now famous *Frog, Where are you?* book (Bamberg 1987) provides a window on how general event components as well as specific motion events, mental states, goals, and action structures are reported on in a wide range of languages, and how these event representations interact with language-specific features. For example, Sebastián and Slobin's (1994) study on Spanish shows that by age 5, children are capable of using morphological aspectual markers in order to convey an event construal that is independent of the event encoded by the lexical verb (p. 255).

Berman and Slobin's investigation and subsequent *Frog Stories* studies focused on the preferred rhetorical options selected by the narrators in the process of event construal. Another line of inquiry on the topic in the context of the cross-linguistic analysis of text production is reflected by the work of Christiane von Stutterheim and her colleagues. These studies, too, approach the analysis of discourse in order to better understand processes of event conceptualization. Studies such as those presented in von Stutterheim, Nüse and Murcia-Serra (2002, see also Carroll & von Stutterheim 2003) show that native speakers of various languages select different event components

1. Not all events are coherently reportable in narrative mode. Some events may be more prototypical of expository or descriptive text types, as in the case of how to bake a birthday cake or how to prepare a breakfast of champions.

in retelling narratives as a function of language-specific principles of information organization. For example, von Stutterheim and Nüse (2003) show that German speakers prefer construing a dynamic situation as bounded, employing devices such as temporal adverbials to explicitly mark this conceptualization, while English speakers prefer a temporal perspective of ongoingness, with very little information provided with respect to the relations between event times. The interpretation of these data provided by von Stutterheim and Nüse is that grammaticalized aspectual distinctions in each of the languages are to some extent the driving force behind the particular perspectives selected in these languages.

These principles are connected to what is termed in the same type of studies as the *Quaestio* (von Stutterheim & Klein 1989) of the text: What happened to you? What did you sense? When is your birthday? What did you eat this morning? Such questions (whether they are asked explicitly or understood implicitly) constrain the information selected for expression, how it is organized in words and utterances, and how utterances are combined together to form an entire piece of discourse.

5. Conclusion

The various studies cited above all take the perspective that language is intimately connected with real world eventualities, the mechanisms which allow us to perceive and interpret these eventualities, and not just the linguistic devices that encode some particular part of these eventualities. Sub-lexical morphemes, lexical items, and syntactic and textual constructions reflect the representation of events and allow us to convey our cultural-general as well as individual-specific construal of these events. Following Talmy (1978), nouns and verbs provide specific elements of the "cognitive scene" while both local as well as global level syntactic structures specify the schemas in which these elements operate. Further study is required on how these different levels of event representation impact one another. Further study is also needed to address ways in which grammar diverges from what is predictable from real-world knowledge and its representation, and how grammar accommodates not only the individual's experience of the world but also the experiences of the other participants in the communicative situation.

As a final note, it is of interest to consider the implications of event representation for the postulation of linguistic theory in general. Thus, our conceptualization of events not only organizes our cognition, it also constrains our formulation of the categories of linguistic analysis (see also Hopper 1987; Haspelmath 2000). It can be suggested that the categories assumed by linguists reflect the points illustrated above: For one thing, these categories are arbitrary, changeable, and gradient, and reflect an organization based on prototypicality (Taylor 1995). Additionally, these categories are dependent on

the perspective taken by the individual, in this case the linguist. There is no question that linguistic categories reflect philosophical or psychological positions with respect to language and mind (for example: Is the mind like a computer? Is language a technology?). There is also little doubt that the postulated categories are influenced by the language spoken (and not only investigated) by the linguist. In addition, these categories reflect our embodied experience. Thus, taking a perspective requires at least two things: a position in space, and a sense that allows us to measure different relations with respect to that position. As noted at the outset, our experience with the world is dependent on what we can perceive and how we perceive it. Consider, then, what it would mean to see the world not through the particular structure and field of view of the human eyes, but from the compound eyes of a house-fly. How would this change our perception of things? How would this change our perception of speed, direction, and time? How would this change our delineation of the linguistic space? Is grammar an innate capacity, which operates based on principles, parameters, or constraints, or is it an emergent, functional structure which reflects personal as well as cultural idiosyncrasies? The research considered here points to the latter view of grammar. It is possible to claim that our entire delineation of the construct 'grammar' is dependent on our understanding of the world as event based. We can only theorize, and test our theories, with different methodologies.

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Evidentiality

Seppo Kittilä
University of Helsinki

1. Preliminaries

As a linguistic category, evidentiality refers to the linguistic coding of the information source a speaker has for his or her statements. In other words, evidentiality refers to the linguistic coding of what we know and how/why (see, e.g., Aikhenvald 2004: 1, for a more detailed discussion of the term; cf. Boye 2018). Our statements may be, e.g., based on visual evidence, or we may only have hearsay evidence for a given claim. Evidentiality can be viewed as both a semantic and a formal category. Semantically, evidentiality can be considered a universal category in that all languages can take account of a speaker's information source somehow, for example, lexical verbs such as 'see' and 'hear' can be used for this in case the language lacks evidentiality as a grammatical category. Other languages, such as Wutun and Tsafiki (see (4) and (5)), in turn, express evidentiality by grammaticalized morphemes, e.g., verbal affixes. In languages where evidentiality is expressed by, e.g., lexical verbs, evidentiality is usually optional, while languages like Wutun express evidentiality obligatorily. Most of the earlier research on evidentiality has focused on languages with grammaticalized evidentiality (see, e.g., Chafe & Nichols 1986; Aikhenvald & Dixon 2003), but recently, there has been a shift in focus, and more research has been done on languages such as German, Spanish and English (see, e.g., Diewald & Smirnova 2010a, 2010b). We may thus say that evidentiality is nowadays viewed more from a semantic/functional perspective and the exact nature of the expression of evidentiality is less relevant. This view is adopted also in this chapter, and no major distinctions are made between languages on the basis of the nature of their evidentiality expression; the goal of this chapter is to discuss evidentiality as broadly as possible.

Evidentiality is closely related to modality, a category better known due to its frequent occurrence in the more extensively studied and more widely spoken languages of Europe (see, e.g., Cornillie 2009 for a discussion of these notions). Both of these categories are related to how certain the speaker finds his/her claims to be. For example, both visual evidentials (used whenever the speaker is basing his/her claims on something s/he has seen) and indicative mood (used whenever the speaker finds a state-of-affairs probable based on the available evidence) are used when the speaker finds the state-of-affairs s/he is referring to likely. However, the two categories differ clearly

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in how the certainty is motivated; in a nutshell, evidentiality is more objective and modality more subjective in nature (see Section 2 for detailed discussion). Pragmatics is thus more relevant to (especially epistemic) modality, while evidentiality is more semantically determined, even though, as the discussion below will show, pragmatics plays an important role for evidentiality as well.

Even though evidentiality is best defined as the speaker's information source, it is important to note that many other features contribute to what kind of evidential the speaker uses. First, the speaker is constantly monitoring what s/he expects the hearer to know (or even what the hearer is obliged to know), and chooses his/her evidentials accordingly (see Bergqvist 2015). Second, in some cases, the right to know or engagement with and access to information better captures the nature of evidentials (see, e.g., Evans et al. 2018). For example, in Wutun lamas are seen to have access to information that is restricted to other people (see (4) below and Sandman 2016: 224). In these kinds of case, the speaker cannot choose his/her evidentials completely freely, but other features need to be taken into account as well. Finally, as will be shown in Section 5, evidentials have other functions not directly related to the expression of information source.

In this chapter, some of the central facets of evidentiality will be discussed from a pragmatically oriented perspective (but semantics also plays an important role). Evidentiality has recently become a popular topic of research in linguistics (even though pioneering work has been done decades ago, see, e.g., Chafe & Nichols 1986), which has the very natural consequence that the field has become rather vast. Thus, only a part of all possible aspects can be considered in this brief overview (the reader is referred to Aikhenvald 2018 for detailed studies of different aspects of evidentiality). The organization of the chapter is as follows. In Section 2, I will discuss the relation of evidentiality and modality. This will be followed by an illustration of the information sources in Section 3. Section 4 examines the effects of context on the use of evidentials by discussing engagement, epistemic authority and right to know, while extended/non-evidential functions of evidentials will be the focus of Section 5. Acquisition of evidentials will be discussed in Section 6, and Section 7 briefly summarizes the most relevant points of this chapter.

2. Modality and evidentiality

As noted above, evidentiality refers to the linguistic coding of a speaker's information source; how we know what we know/claim. Modality (especially epistemic modality), for its part, can be seen as the linguistic coding of the speaker's assessment of the likelihood of the occurrence of a given state-of-affairs (see Kiefer 1998; Palmer 1986 for more detailed discussions of modality). Both notions are intimately associated with

the likelihood of a given state-of-affairs, but the probability is motivated differently. As regards evidentiality, the nature of evidence directly determines how likely an event or state is, and the speaker's own evaluation is less important. By contrast, the speaker's own (subjective) evaluation is always relevant to modality, even though the speaker is naturally using the information available to him/her as a basis for his/her evaluation. (Epistemic) Modality is thus best defined as the speaker's subjective evaluation of the probability of a state-of-affairs, while evidentiality can be defined as the type of evidence the speaker has for his/her claim (see Cornillie 2009 for a discussion of the notions of modality and evidentiality).

In principle, all our claims are based on some kind of evidence (which may be totally absent in a given situation, as is the case, e.g., with general knowledge, see Kittilä 2019), and modality and evidentiality represent different ways of dealing with and conceptualizing the evidence we have. Evidentiality is more directly related to the evidence itself and evidentiality markers directly code the type of evidence we have for our statements. We cannot label a given marker as an evidentiality marker if it does not account for the evidence type in any way. Modality, in turn, is not in any direct way associated with the evidence type, and, for example, the use of indicative mood does not say anything about the evidence type the speaker is basing his/her claims on. It only conveys the message that the speaker finds the denoted state-of-affairs likely, but it is totally silent on the evidence type. The speaker is, naturally, more likely to use indicative mood for statements based on visual evidence, but s/he is free to use indicative (or any realis) mood also for statements based on hearsay in case s/he finds the evidence reliable enough. Languages differ according to whether they stress the nature of evidence or the speaker's judgement; the first type is represented by languages with evidentiality, while the second type is illustrated by languages that code modality obligatorily (e.g., by grammatical mood). For example, if both speaker A and speaker B have heard from C that John is coming, they are both going to use a hearsay evidential if they speak a language that obligatorily codes evidentiality. But they may use different moods or modal markers (e.g. *John is coming*, or *John might be coming*) according to how reliable they find C's evidence to be.

Modality and evidentiality clearly differ from each other in their subjective vs. objective nature, but the two notions have in common that variation in the use of different markers is less dramatic for highly reliable (typically, e.g., visual) evidence. This follows rather naturally for evidentiality, because evidentiality is primarily about the nature of evidence, but a similar claim can also be made for modality. For example, the speaker is highly likely to use indicative mood, and thus present his/her claim as reliable, when s/he has visual evidence for his/her claim. In this case, the evidence is very reliable and hard to deny, and the use of other moods would thus be deemed odd. On the other hand, there is more variation for hearsay evidence, because the speaker always has to evaluate him/herself whether s/he finds the person responsible

for a given claim reliable or not. The effects of pragmatics are clearly less drastic, yet not inexistent, for evidentiality, because the nature of evidence we have for our statements varies depending on context, and some evidence types are more prone to pragmatic interpretations than others. The effects become visible the less reliable and direct the speaker's evidence becomes; less direct evidence leaves more room for speculation.

Even though most of our claims (with the notable exceptions of lies and fiction) are based on some kind of evidence that may be contextually present or not, a clearly smaller percentage of languages have grammaticalized the expression of evidentiality, but grammatical mood seems to be more frequent across languages. This is, however, probably not a mere coincidence, but we can make a case for the more frequent occurrence of grammatical modality. From the hearer's perspective it is relevant to know whether the speaker is able to take responsibility for his/her claims, which is more directly reflected in the choice of the modal expression. Certainty is an integral part of the semantics of modals, while with evidentials certainty is only an implication. Moreover, the speaker may not be totally sure about his/her source of information, but s/he can nevertheless evaluate the degree of his/her certainty for a given claim. Source of information, purely objectively, is only one, yet a highly relevant, part of this evaluation process. Direct evidence may also be contextually present, which makes its overt expression less relevant, while the speaker's evaluation is never fully retrievable from any available cues. These differences are also formally or lexically manifest. For example, Finnish, where coding of evidentiality is optional, has (in addition to grammatical mood) a variety of modal particles that can also be used for coding emphasized certainty. In contrast, there is no evidential particle for direct information, but only particles for inference, assumption, hearsay and quotation. Zero is the default form used whenever the speaker has no reason to mark the information source, and its use implies that the speaker has direct (and reliable) evidence for his/her claim. However, despite the more detailed/varied marking of modality across languages, source of information plays an important role, and many languages have made it a part of their grammar.

3. Information sources

The types of evidence we may have for our statements constitute an important part of studies of evidentiality. Many classifications of information sources have also been proposed, but despite the differences in how the different information sources are distinguished from each other, the evidence types discussed are largely the same. Two slightly different classifications are found below (see also, e.g., Willet 1988).

Direct/personal (=attested, witnessed, firsthand, confirmative)
– Participatory/endophoric; common knowledge
– Visual (with subtypes)
– Non-visual (sensory)

Indirect/personal
– Inferential (based on observed results)
– Presumptive (based on plausible reasoning) (common knowledge)

Indirect/non-personal (secondhand)
– Reported (with subtypes)

(Plungian 2010: 37)

1. Visual evidence
2. Non-visual sensory evidence
3. Inference
4. Assumption
5. Hearsay
6. Quotative

(Aikhenvald 2004: 63f)

The two taxonomies given above differ from each other in how the different information sources are distinguished, and there are also some differences in the number of categories. For example, Plungian considers participatory (egophoric) evidence and common knowledge (in the first sense referring to pieces of information that have become the speaker's internal information) in his classification, while these are lacking on Aikhenvald's list. The classifications also differ from each other in that Plungian makes his distinctions more explicitly based on the (in)direct and (non-) personal nature of the evidence, while Aikhenvald is rather a mere list of possible information sources.[1]

The evidence types discussed above rather well cover the ways in which humans gather information about the surrounding (non-linguistic) world. The categories discussed are also rather self-explanatory in many cases (even though their actual use may deviate from their basic semantics, as shown in Section 5). Participatory evidence comprises cases where the speaker is making a claim based on his/her own (volitional) participation in an event, as in 'I am writing this paper' (see Floyd et al. 2018 for detailed discussion of egophoricity in different languages). Common knowledge refers

1. Aikhenvald also discusses the differences between the information sources elsewhere in her book.

to cases where the speaker is making a claim based on a piece of information that has become a part of his/her established world view without having any other evidence for his/her claim as s/he speaks. Typical examples comprise, e.g., mathematical and geographical facts and pieces of evidence that we know, e.g., about our good friends, e.g., that John and Lisa have two children (see Kittilä 2019 for a more detailed discussion of general knowledge). Visual evidence refers to something we have witnessed visually. Non-visual sensory evidence covers all other types of sensory evidence. In languages with dedicated non-visual sensory markers, one marker usually codes all instances of this evidence type (as in Oksapmin, see Lawrence 1987: 55–56). Some languages (e.g., Tundra Nenets, see Jalava 2017) have a dedicated marker for auditive evidence, but no language is known to date that would have a specific marker for gustatory, tactile or olfactory evidence. Inference and assumption are two slightly different manifestations of personal and indirect evidence (see, e.g., De Haan 2001; Plungian 2010: 37). In both cases, the speaker is making a claim based on some evidence that is not directly related to the state-of-affairs s/he is referring to. For example, we may infer or assume that Lisa has left, when we see that her coat is gone. In this case, we directly witness the coat being gone, but we have not seen Lisa leave. Inference and assumption differ from each other in that inference is usually based on some concrete and observable evidence, while prototypical assumption is based on, e.g., the speaker's general knowledge about the world (see, e.g., Aikhenvald 2004: 63). Finally, reported, hearsay evidence covers cases where the speaker's evidence is indirect and non-personal, i.e. the speaker has no evidence of his/her own, but s/he has to rely on second-hand information. Reported evidence can further be divided into two types depending on whether the source of information is known/mentioned or not; the source is known for quotation, but it is unknown for (general) hearsay.

The different evidence types illustrated above differ from each other in how objective or subjective they are, and in whether the speaker's own evaluation plays a role in how a certain piece of evidence is interpreted. Visual evidence is very objective in nature, and it is very hard to deny something we have actually seen. On the other hand, other instances of sensory evidence are more subjective in nature. For example, if we hear a sound or smell something, we may not be sure of what caused this, and we may be less willing to take responsibility for our claims. Choosing between inference and assumption always involves a subjective component, because the speaker opts for using either of these evidentials based on the reliability of the available evidence from his/her own perspective. The objective vs. subjective nature of the evidence thus correlates rather directly with the direct vs. indirect nature of the evidence; there is clearly less variation and subjectivity for direct evidence. Finally, we may note that the nature and reliability of evidence are not constant. For example, a certain piece of information may originally be based on hearsay (i.e. indirect and thus unreliable) evidence, but once it becomes general knowledge for us it becomes highly reliable evidence. In

other words, the context determines the nature of the evidence in these cases, not the semantics of the given piece of information directly.

The different information sources discussed above form a clear hierarchy. Participatory, or visual evidence (depending on the exact classification) can be viewed as the most direct and most reliable evidence type, while reported/hearsay evidence constitutes the least direct and non-reliable information. The speaker can usually take (full) responsibility for his/her claims based on his/her own actions, or visual evidence, but s/he cannot take any responsibility for claims based on hearsay; they are always someone else's information, and the speaker may only choose how reliable s/he finds the evidence to be. Moreover, the hierarchy is also relevant for pragmatics in that the speaker is expected to use the most direct evidence possible for his/her claims (see Faller 2002). This means that whenever direct (personal) evidence is available, the speaker will use it for his/her claims if there is no reason not to. Conversely, whenever the speaker resorts to any type of less direct evidence, the hearer usually infers that the speaker does not have more direct evidence available, which probably affects the way in which the hearer interprets the speaker's utterances (e.g., whether s/he can trust the conveyed information). In case the speaker has multiple types of evidence available, s/he usually opts for using the most direct reliable evidence. The co-operative principle and Grice's maxims are highly relevant in this regard; do not say anything you lack adequate evidence for. This follows because the speaker's goal is to convince the hearer of his/her claims and whenever this is not possible based on direct and reliable evidence, it is highlighted linguistically. It is in order to note that even though visual evidence in general constitutes the most reliable evidence type, different states-of-affairs vary according to which type of evidence is best regarded as the best possible evidence for them. For example, for any type of sound, auditive evidence is naturally more reliable than visual evidence.

Two further notes on the pragmatics of evidentials and information sources are in order. First, the division of labor between implicit (zero) and explicit coding has a clear pragmatic basis. In all the languages where zero is used for coding any type of evidence, it always codes (at least) direct and other types of highly reliable evidence. This is the case, for example, in Magar, as shown in (1) (see also LaPolla 2003: 199 for Qiang).

(1) Magar (Grunow-Hårsta 2007: 156)

a. *hose* *tarafi-a*
D.DEM arrive-PST
'He has arrived.' (I see him.)

b. *hose* *tarafi-sa*
D.DEM arrive-INFR
'He has arrived.' (I see his bag.)

c. *hose* *tarafi* *ta*
D.DEM arrive REP
'He has arrived.' (They say.)

In (1a), the speaker's claim is based on direct evidence and there is no explicit marking for this evidence type. In contrast, inference and hearsay evidence are explicitly marked.

Zero coding of direct evidence follows quite naturally. First, direct evidence is typically readily available when we speak of states-of-affairs we are witnessing. The hearer can thus easily infer the type of evidence we have for our statements, and we may also share the same information. In languages such as Finnish that code evidentiality optionally by particles, zero coding is the default and occurs in all the cases where the speaker finds the evidence reliable; only less reliable/direct instances of evidence are marked explicitly. Second, it is most natural to make claims based on something we have high certainty of. The degree of certainty is highest for direct evidence, and we may also say that communication runs most smoothly in case we base our claims on information that we find reliable (cf. Grice's maxim mentioned above). In principle, any type of information could be the least marked evidence type formally, but the previously mentioned pragmatic reasons speak for the unmarked nature of direct evidence. The hearer expects the speaker to use the best possible evidence available to him/her, and what is expected does not need to be highlighted.

Second, the nature of attested evidentiality systems along with the emergence of evidentials is largely pragmatically determined, i.e. communicative needs explain why certain systems exist while others do not. First, basically all languages with some form of grammaticalized evidentiality have a hearsay (or a general second-hand) evidential regardless of the size of the given evidentiality system (see Aikhenvald 2004: Chapter 2). On the other hand, there are no languages where the only grammaticalized evidential would be a direct evidential (coding any type of direct evidence). Purely logically, both of these types are equally plausible, but the former system better makes important contextually relevant distinctions. For example, it may be of the utmost importance to highlight the fact that the speaker's claim is not based on his/her own evidence. Direct evidence, for its part, may be contextually present, which makes systems that can only refer to this kind of evidence explicitly rather dysfunctional. Certain differences are communicatively relevant, which accounts for the occurrence of hearsay evidentials. The emergence of evidentials can to a large extent be explained along similar lines. The first evidential to emerge is usually (or even always) some kind of hearsay/second-hand evidential, i.e., languages first make the most relevant distinctions by marking the evidence type furthest from the expected type. Examples of languages whose only grammaticalized evidential is some kind of hearsay evidential include Estonian (Kersten Lehismets, p.c.) and Ayutla Mixe (Romero-Ménde 2008: 245). Semantically more specific evidentials (such as factual evidentials and assumptives) are usually attested only in larger systems, i.e. they develop when language already has a means of dealing with more significant differences. We may thus say that the coding of information sources is semantically motivated (the attested evidentials largely cover

the ways in which humans gather information about the world), while evidentiality systems and the emergence of evidentials are rather pragmatically motivated.

4. Engagement, epistemic authority and right to know

Even though evidentiality is primarily about the speaker's information source, which is in many cases rather constant in nature, other features contribute to which of the possible evidentials the speaker chooses for his/her statement. Engagement, epistemic authority and right to know, discussed below, make an important contribution to this. These are all strongly pragmatic aspects of evidentiality whose use can be explained only by referring to pragmatics (e.g., context); the semantics of evidentials makes a contribution, but does not alone suffice to explain their use exhaustively.

First, even though evidentiality primarily concerns the speaker's evidence for his/her claim, the speaker also considers what s/he expects the listener(s) to know when choosing his/her evidentials. Evans, Bergqvist and San Roque (2018: 110) label this phenomenon engagement and define it as a grammaticalised means for encoding the relative mental directedness of speaker and addressee towards an entity or state of affairs (other terms for similar phenomena include multiple perspective (Evans 2006) and intersubjectivity (Verhagen 2005)). For example, the speaker may use different evidentials depending on whether s/he expects the hearer to have access to the same information or not. This has been grammaticalized in languages such as Andoke and Kogi that have distinct evidential markers for shared and private knowledge, as shown in (2) and (3):

(2) Andoke (Landaburu 2007, as cited in Evans et al. 2018: 114)

a. *páa* *b-ʌ* *ʌ-pó'kə̃-i*
already +SPKR+ADDR.ENGAG-3SG.INAN 3SG.INAN-light-AGR
'The day is dawning' (as we can both see). (shared knowledge)

b. *páa* *kẽ-ø* *ʌ-pó'kə̃-i*
already +SPKR-ADDR.ENGAG-3SG.INAN 3SG.INAN-light-AGR
'The day is dawning' (as I witness, but you are not aware of). (non-shared knowledge)

(3) Kogi (Bergqvist 2016: 2)

a. *kwisa-té* *na-nuk-kú*
dance-IMPF SPKR.ASYM-be.LOC-1SG
'I am/was dancing.' (informing)

b. *kwisa-té* *ni-nuk-kú*
dance-IMPF SPKR.SYM-be.LOC-1SG
'I am/was dancing.' (confirming)

Andoke has two evidential markers whose use is determined by whether the speaker expects the hearer to have access to the same information or not; in (2a) speaker and hearer share the same information, while in (2b) this is not the case. Kogi also has two markers that Bergqvist (2016: 2) defines as follows: *na-* means that 'the speaker knows e and expects the addressee to be unaware of e', and *ni-* means that 'the speaker knows e and expects the addressee to know e too'. In Wutun (Sandman 2016: 225), factual evidentials are used whenever the speaker expects the hearer to have access to the same information s/he has, which is the case for example for pieces of general knowledge shared by the whole community. In all of these cases, we cannot capture the whole meaning of the given elements solely by referring to the speaker's information source, but the addressee's evidence also needs to be considered. In fact, in (2) and (3), the information sources are different, in (2) the speaker has visual evidence for his/her statement, while in (3) s/he is using ego-evidence. This lends more support to the fact that the use of these elements is determined by whether or not the information is shared, not by the nature of the information.

Engagement is related more generally to epistemic authority. Epistemic authority refers to the person who has the best and most direct evidence for a given piece of information, in laypersons' terms, "who knows best". For example, in (2b), the speaker is clearly the epistemic authority, because s/he has direct access to the given information, while in (2a), epistemic authority is shared, which is manifested in the speaker's choice of evidential. More generally, we may say that by using a direct evidential the speaker usually assumes epistemic authority (and the right to know), while reported evidentials shift the epistemic authority to an unspecified (general hearsay evidentials) or specified (quotatives) source. The notion of epistemic authority is highly relevant to the use of ego-evidentials as well. Whenever the speaker chooses an ego-evidential for his/her claims, s/he assumes epistemic authority. This is very natural given the ego-evidentials' primary function of coding the speaker's volitional involvement in a state-of-affairs, which makes the speaker the epistemic authority by default. Ego-evidentials most naturally occur with first person referents due to their semantics, but they are also possible in cases where the speaker assumes epistemic authority over other people's actions, as in (4).

(4) Wutun (Sandman 2016: 224)

ni gu liang-ge da jhang-de hanqai-la da gu
2SG 3SG two together-REF then today-ATTR except-ABL then 3SG

be-lai-yek caixi-la da gu be-lai-yek ni haipa-de
NEG-come-EGO tonight-ABL then 3SG NEG-come-EGO 2SG fear-NMLZ

bai-yek sho-ma
EXIST.NEG-EGO QUOT

'As for you and him, from today he will not come (anymore); after tonight he will not come (anymore). You don't have to be afraid (the lama) said'.
(WutunWT09Monks_4.)

In Wutun culture, lamas are seen as high religious authorities who have access to information unavailable to normal people (Sandman 2016: 224). Therefore, they may assume epistemic authority also in cases where they are speaking of other people's actions. The relation of ego-evidentials to epistemic authority is further manifested in the fact that non-ego evidentials may be used with first person when the speaker cannot assume full epistemic authority, as shown in (5).

(5) Tsafiki (Dickinson 2000: 412)

a. *la* *kuchi=ka* *tote-yo-e*
1MASC pig=ACC kill-EGO-DECL
'I killed the pig (intentionally).'

b. *la* *kuchi=ka* *tote-i-e*
1MASC pig=ACC kill-NONEGO-DECL
'I killed the pig (unintentionally).'

c. *la* *kuchi=ka* *tote-i-nu-e*
1MASC pig=ACC kill-NONEGO-INFR/MIR-DECL
'I killed the pig (unintentionally, I infer it on the basis of indirect evidence).'

In (5a), the speaker uses an ego-evidential, because s/he is referring to an action that s/he has performed volitionally and that s/he has controlled, which makes him/her the epistemic authority. In (5b–c), the speaker's involvement in the event has been involuntary, which is manifested in the choice of evidentials. Due to the lack of volitionality, the speaker cannot assume epistemic authority, and a non-ego evidential is chosen.

Epistemic authority is very naturally related to first person, because a speaker knows best what concerns him/her. Moreover, epistemic authority is also directly related to the use of evidentials with second person. Similar to the first person (as in (5)), the second person is unarguably the epistemic authority over his/her own actions. The distribution of epistemic authority in utterances concerning a second person also has the consequence that the use of direct evidentials is generally viewed as pragmatically marked. This follows very naturally, because the hearer unarguably has the most direct access to the relevant information, which makes the speaker's evidence always less direct. The use of direct evidentials gives the impression that the speaker is assuming epistemic authority, which s/he usually cannot have. The use of indirect evidentials is thus more natural, because in this case the speaker is making a claim concerning the addressee, but is not claiming epistemic authority, rather, s/he is, for example, making an inference or assuming something. For example, the use of indirect evidentials in cases such as 'you are sick' and 'you are happy' appears more natural, because the speaker may (at best) have sensory evidence for his/her claim, while the hearer's evidence is always ego-evidence.

Because speech-act participants are, naturally, present in the speech event, both of them are epistemic authorities of their own actions. Third person is drastically different as regards claiming epistemic authority. Neither speech-act participant is by default

the epistemic authority for claims regarding third person referents, but this is always contextually determined, and the participant with the most direct evidence available is usually accorded a higher degree of epistemic authority. This follows also from the lack of ego-evidence for both participants; as speech-act participants both first and second person referents have ego-evidence for claims concerning themselves, but this cannot be the case for third person referents. Thus, with third person, any evidential is equally possible, and the choice is determined by the type of evidence available to the speaker. Epistemic authority is less relevant, but it also plays a role in that in order to use a direct evidential, the speaker must have access to direct information. With first and second person, either indirect (first person) or direct (second person) evidentials are usually deemed less felicitous due to the distribution of epistemic authority (see Aikhenvald 2004: Chapter 7 for a detailed discussion of person and evidentials).

Epistemic authority is further closely related to the right to know. With first and second person, it is obvious that the speaker or the hearer a has right to know, but for third person there is variation in this regard; who has the best possible evidence available and who can thus claim responsibility for a given claim. Illustrative examples are found in Shipibo-Konibo and Tariana. In Shipibo-Konibo, shamans use a direct evidential for their dreams, while laypersons use a reportative evidential (Valenzuela 2003: 51). In Tariana, in turn, shamans use visual evidentials for their utterances and other people also use visual evidentials when referring to information received from shamans (Aikhenvald 2003: 138). In Quechua, shamans may use direct evidentials when referring to folklore, while other people must use other evidentials (Floyd 1999; Martina Faller, p.c.). These differences follow, because shamans are believed to have direct access to the denoted pieces of information, which also grants them the right to use direct evidentials. Similar differences are attested also, for example, for factual evidentials and also for reportatives. Factual evidentials code information that the speaker finds highly reliable in that the denoted piece of information has become a part of the speaker's established world view. Only those who have absolute (subjective) certainty of a given piece of information may refer to it via factual evidentials, or put another way, the speaker uses a factual evidential only when s/he has the (contextually determined) right to do so.

The right to know is also related to the use of reportatives, especially quotatives; who has the right to quote whose information, in other words, whose voice are we entitled to speak with? The right to know does not apply to general hearsay evidentials, because we are not making claims based on any specific person's information when using them. On the other hand, with quotatives we may need to consider other people's face and/or we may need to think whether we have the right to refer to a state-of-affairs via other people's information. By using hearsay evidentials we shift the responsibility to a third party whose identity is unknown. Quotatives also shift the responsibility away from the speaker, but to a specific, named source, which means

that s/he needs to take the quoted source's face into account. The functional differences between hearsay and quotative evidentials also explain their use in different genres. As such, both evidentials may be used in most genres, but hearsay evidentials are less felicitous in, e.g., newspaper texts, at least in languages such as Finnish, where evidentiality is coded primarily by evidential particles. This probably follows, because in this genre truth is important and the hearer needs to be able to check the truth value of the claims made, which is not possible in the case of general hearsay evidentials. The use of quotatives is also related to polyphony and different voices, because the use of quotatives brings other people's voices into the discourse. Whose words are we bringing into the discourse and why (see Roulet 1996 for polyphony)? The use of quotatives also underline the fact that not only the speaker's evidence is important, but other people's information also play an important role.

5. Non-evidential uses of evidentials

Even though evidentials are labeled based on the evidence type they primarily code, their exact function varies, in some cases drastically, according to the context they are used in. For example, visual evidentials may also be used for other types of sensory evidence, or any kind of highly reliable (direct) information. Inferential evidentials rather typically acquire other functions, such as mirativity, and the expression of lack of volitionality (Curnow 2003). Inferential and assumptive evidentials can in principle be distinguished based on the nature of (indirect) evidence the speaker has for his/her claim, but the choice between these two evidentials typically comprises a strong subjective component as well; the speaker chooses either inferential or assumptive evidential according to how reliable s/he finds the available evidence to be (inferentials are used for more reliable evidence, e.g., Aikhenvald 2004: 63). In the following, some of the central extended/non-evidential uses of evidentials will be discussed. The discussion proceeds from cases where the difference to the original function is rather small to clearly non-evidential functions.

The attested (grammaticalized) evidentials, as noted above, rather well cover the basic ways in which humans gather information about the non-linguistic world. However, we may also make claims based on other types of evidence, such as general knowledge and folklore, which are rather rarely coded by distinct evidentials (see Kittilä 2019 for general knowledge). General knowledge is commonly coded by ego-evidentials or direct evidentials, while reportative and indirect evidentials are typical of folklore (see, e.g., Aikhenvald 2004: 56). This distribution of markers is rather directly accounted for by the nature of the evidence types in question. General knowledge (or facts) is highly reliable evidence, which explains the use of the most direct evidential available (ego- or direct/visual evidential depending on the language)

for its coding. On the other hand, folklore is typically oral information that is passed on from generation to generation, which renders reportatives and indirect evidentials natural for its coding. Folklore may be seen as highly reliable information due to its nature, but normal people are not allowed to take responsibility for it, which explains its formal treatment.

In addition to coding some less frequent evidence types, the basic semantics of evidentials is also exploited in ways not as directly explained by referring to the type of evidence the speaker uses. A very good example of this is illustrated by avoiding/claiming responsibility. As noted above, the speaker can take responsibility for claims based on direct (especially visual) evidence, while this is not possible for hearsay evidence. Consequently, hearsay (and also other indirect) evidentials are readily available for avoidance of responsibility. The speaker may thus resort to indirect evidentials whenever s/he wants to shift the responsibility to an unspecified source away from him/herself. Indirect evidentials may also be used to express doubt, which is also in line with the indirect and non-personal nature of hearsay evidence. In these cases, the use of, e.g., a hearsay evidential is not motivated by the nature of evidence actually available, but the contextually appropriate evidential is chosen for other, pragmatic, reasons. The hearer may either interpret a given utterance literally, or s/he may evaluate the evidence contextually and draw conclusions based on that. From the speaker's perspective the exact reading is not that relevant, because s/he can nevertheless avoid responsibility by using a less direct evidential.

Finally, evidentials have functions not in any direct way related to the type of information source. First, mirativity, here understood in line with, e.g., DeLancey (1997, 2001, 2012) and Hengeveld and Olbertz (2012) as unanticipated/surprising information, is frequently coded by evidentials. Two examples are provided in (6) and (7).

(6) Turkish (Aksu-Koç & Slobin 1982: 187)
   a. *Kemal gel-di*
      Kemal come-PST
      'Kemal came' (neutral for evidentiality)
   b. *Kemal gel-miş*
      Kemal come-MIR
      'Kemal came' (mirative/evidential)

(7) Jarawara (Aikhenvald 2004: 197)
   Okomobi faha hi-fa-hani ama-ke
   Okomobi water Oc-drink-IMM.P.NONFIRSTH.F.EXT-DECL.F
   'Okomobi (to his surprise) drank water'.

In both (6b) and (7), the piece of information in question presents unanticipated information for the speaker, which is coded by an evidential marker available in the language. In Turkish, the mirative marker illustrated in (6b) may also express hearsay

or inferential evidence, while in Jarawara a non-firsthand evidential is used for this purpose. Especially the extension from inference to mirativity is easily accounted for, because inference always involves uncertainty and unpreparedness for the denoted state-of-affairs, which is an essential part of the semantics of mirativity (but whose use is always determined pragmatically by the context). Mirativity and evidentiality both concern the evidence the speaker has for his/her claim, but in drastically different ways. Evidentiality is directly related to the nature of the speaker's information source, while mirativity concerns the relation of the speaker's information to his/her prior knowledge. The exact nature of the evidence type is not important. In addition to languages like Turkish and Jarawara, there are also languages where mirativity is expressed by distinct morphemes (such as Kham (Watters 2002: 288)), but these lie outside the scope of this paper, even though these languages provide us with the best possible evidence for the existence of mirativity as a linguistic category.[2] They, however, do not tell us anything about extended uses of evidentials.

Another frequent non-evidential function associated with evidentials is illustrated by lack of control/volition. This comprises cases where the speaker does not exercise (full) control over the denoted state-of-affairs, and/or s/he is not involved in it volitionally. Two examples are illustrated in (8) and (9).

(8) Tariana (Aikhenvald 2004: 223–224)

a. *kaɾapi nu-thuka-ka*
plate 1SG-break-REC.P.VIS
'I have cracked a plate intentionally.' (e.g. I was angry or hated the plate.)

b. *kaɾapi nu-thuka-mahka*
plate 1SG-break-REC.P.NONVIS
'I have broken a plate unintentionally.'

(9) Northern Akhvakh (Creissels 2008: 11)

a. *de-de istaka b-iq'w-āda*
1SG-ERG glass N-break-CAUS.PRF.EGO
'I broke the glass.' (lit. 'I made the glass break.')

b. *di-gune istaka b-iq'w-ari*
1SG O-ABL glass N-break-PRF.NONEGO
'I broke the glass unintentionally.' (lit. 'The glass broke from me.')

In (8a) and (9a), the denoted event is viewed as volitionally instigated, while in (8b) and (9b) the same event is viewed as non-volitional. In both languages, this difference is manifested in the evidential employed; in Tariana visual evidential changes

2. Recently, the status and the essence of mirativity and mirative markers has been debated, and some scholars do not view mirativity as an independent category (see, e.g., Hill 2012), while others do (DeLancey 2012; Hengeveld & Olbertz 2012).

to non-visual evidential, while in Northern Akhvakh, ego-evidential is replaced by a non-ego evidential. In other words, in both languages, the most direct evidential is replaced by a less direct one. In Northern Akhvakh, the change in the evidential is also accompanied by a change in case marking of A. In Tariana, the use of non-visual evidential implies that the speaker has not witnessed his/her own action, which yields a non-volitional reading. In Northern Akhvakh, the use of ego-evidentials implies that the speaker cannot take full responsibility for his claim, which also holds for involuntarily instigated actions.

Lack of volition is related to mirativity in that mirativity may also be motivated by lack of volition especially with first person; something we do not plan is usually also unexpected. However, in this chapter these notions are explicitly distinguished for two reasons. First, mirativity is a broader concept, and it comprises any type of unexpectedness, not only those cases where this follows from lack of volition. Second, lack of volition is usually restricted to first person (at least when expressed by evidentials), while miratives are possible with any person. This also follows quite naturally, since any state-of-affairs can be unexpected to us (depending on context), while we can only be sure about our own volitionality. In both cases, we are dealing with the speaker's subjective evaluation, but in different ways. With (lack of) volition we are judging our own actions and their volitionality, which is naturally best known to us. As regards mirativity, subjectivity means that we evaluate whether a state-of-affairs is anticipated or not based on our own expectations. Other people's actions and their (un)expectedness from their perspective is not relevant. There is also formal evidence for the distinction; evidentials do not seem to acquire non-volitional readings with other persons (see Curnow 2003 for a more detailed discussion).

The uses of evidentials discussed previously are clearly non-evidential in the sense that no reference to a specific information source is made in any of the cases discussed in (6–9). However, both mirativity and lack of volition can be regarded as rather natural extensions of an evidential's primary meaning, where pragmatics also plays a central role. For example, inference means that the speaker is making a claim based on something that is only indirectly related to the state-of-affairs s/he is referring to. In many cases, the speaker only has evidence for the result, and s/he needs to infer what has led to it, which is always open to unexpectedness in that the speaker's inference may be wrong. For example, if the speaker notices that Lisa's coat is gone, s/he may view this as reliable enough evidence for a claim such as 'Lisa has left', even though the actual reason may be something completely different (e.g., Lisa's coat was stolen). In a similar vein, mirativity expresses unexpectedness. The speaker has some evidence s/he is using as a basis for his/her claim, but what actually occurs is contrary to the speaker's evidence. The basic semantics of evidentials is relevant to the type of non-evidential functions evidentials acquire. As noted previously, inferentials are rather

closely related to lack of volition and/or mirativity. On the other hand, reportative evidentials easily lend themselves to functions related to avoidance of responsibility.

6. Acquisition of evidentials

Acqusition of evidentials has not been studied in great detail, which follows at least to some extent from the fact that in general, evidentiality as a notion has not been the target of extensive research yet (see Fitneva 2018: 186). Another fact that may be relevant in this regard is that evidentials are more usually attested (as a grammatical category) in lesser studied languages (with lower number of speakers) the research on which is more typically focused on the description of the language, and acquisition is in the background, and may thus pose challenges for any kind of detailed study. However, some studies are briefly discussed below.

Even though the number of studies on acquisition of evidentiality is not very high, the studies conducted do reveal some general trends. Aksu-Koç (1988) has shown that children acquiring Turkish learn to use the direct evidential at about eighteen months, whereas they start using the indirect evidential some months later. Later appearance of indirect evidentials has been reported also, e.g., for Korean (Choi 1991), Japanese (Matsui & Yamamoto 2013), Tibetan (de Villiers et al. 2009) and Quechua (Courtney 1999). Pillow (1989) has shown that children first learn the relevance of visual evidence for statements, and only a couple of years later they realize that inference (i.e. indirect evidence) is a valid source of information as well (Sodian & Wimmer 1987).

In addition to showing, perhaps expectedly, that indirect evidentials appear later in children's speech, their functions are also relevant as regards their acquisition. For example, Turkish-learning children first start to use the indirect evidential *-mış* to mark new/unexpected information, and a little later the form appears in storytelling and for inference based on current results. Finally (at around 36 months of age), children start using the marker for coding hearsay evidence (Aksu-Koç 1988). For Korean, the children first distinguish between assimilated and unassimilated information, which is followed by hearsay evidentials (Choi 1991, 1995). It is perhaps noteworthy that inferential evidentials were not productively used by children in Choi's data.

The results of the studies briefly discussed above are rather expected, and they reflect the general tendency that what is easy is acquired or learnt before what is more complex. For example, direct evidence, especially visual evidence, is directly observable, which makes it easy to use it as evidence for one's claims. In a similar vein, children first learn words that are a part of their immediate surroundings, such as 'mummy', 'daddy', 'cat' and 'dog', for example. Direct evidence is also less complex in that it only involves direct observation of the event we are referring to, whereas inference entails combining direct observation with something that is not directly present. Similarly,

learning to use a verb correctly requires that the child can combine a concrete referent with some kind of action. Learning to use the Turkish indirect evidential first as a marker of new/unexpected information is in line with this; unexpected information is also directly observable and available, and does not require any kind of combination of current observation with something that is not available as we speak.

Acquisition of evidentials reflects rather directly the general tendencies of language acquisition; what is easier is acquired first. One thing that is worth mentioning in this regard is the fact that hearsay evidentials seem to be among those evidential functions that are learnt last. This is interesting in light of the fact that, as noted above, hearsay evidentials are among the most common evidentials across languages and they also seem to be among the first (grammaticalized) evidentials that emerge in languages (see, e.g., Aikhenvald 2004: Chapter 7). There is thus a clear discrepancy in how early hearsay evidentials emerge in language acquisition and language change. This difference is, however, probably rather easily explained by pragmatics and communicative needs. When a child is acquiring his/her native language(s), s/he needs to be able to get his/her message through in some way first, whereby evidentials play a less important role. On the other hand, in adult communication, features such as politeness, face and reliability are relevant, which renders it important to be able to distinguish one's own information from other people's information. This readily explains the early emergence of hearsay evidentials, which makes this possible and also enables the speaker to avoid taking responsibility for his/her claims.

7. Summary

The present chapter has discussed evidentiality from different perspectives. Evidentiality was defined first and foremostly as a semantic category whose primary function is to code the source of information the speaker is using for his/her claims, but as has been shown, context and other pragmatic aspects also play a role for how evidentials are actually used. Languages can be divided according to whether they express evidentiality obligatorily as a part of their grammar, or whether this is done optionally, e.g. by lexical verbs or evidential particles. Traditionally, most studies on evidentiality have focused on languages with obligatory evidentiality, but more and more research is nowadays conducted on languages whose expression of evidentiality is optional.

Evidentiality is closely related to other categories, most notably modality (especially epistemic modality). Both evidentiality and modality are related to how likely the speaker finds the state-of-affairs s/he is referring to. The certainty is, however, motivated differently. Modality is primarily about the speaker's (subjective) certainty, which naturally makes certainty an integral part of any modal expression. On the other hand, degree of certainty is rather an implication for evidentiality; the state-of-affairs

is more certain if the speaker has direct evidence for it. Modality is more subjective and evidentiality more objective in nature.

Even though any marker that we wish to label as a genuine evidential marker must be able to code some kind of evidence, evidential markers serve an array of other functions as well, and in some cases the use of in principle objective evidentials comprises a subjective component. This is most visible for epistemic authority and/or right to know. First of all, people have different sources of information, and depending on the situation, some speakers know certain things better than others. This is most evident for speech-act participants that always have epistemic authority for their own actions. Second, in some cultures, for example high religious authorities are seen to have more direct access to information than ordinary people. They may thus use direct evidentials for pieces of information for which ordinary people must use indirect evidentials.

Finally, in addition to their basic function (according to which evidentials are labeled), many evidentials have acquired other functions that are somehow motivated by their basic semantics. First of all, not all evidence types have a dedicated evidential available for their coding, but in many languages the most direct evidentials of a language are also used for coding general knowledge/facts. Second, speakers may exploit the basic semantics of evidentials, and for example hearsay evidentials may be used for avoiding responsibility also in cases where the speaker has more direct evidence for his/her claim. Third, evidentials have also acquired functions that refer not directly to the information source. The most notable of these functions are illustrated by mirativity and the expression of lack of volitionality.

Abbreviations

ACC	Accusative
ADDR	Addressee
AGR	Agreement
ABL	Ablative
ASYM	Asymmetric
ATTR	Attributive
CAUS	Causative
D.DEM	Distal demonstrative
DECL	Declarative
EGO	Ego-evidential
ERG	Ergative
EXIST	Existential
EXT	Extent
F	Feminine
IMM.P	Immediate past
IMPF	Imperfective
INAN	Inanimate
INFR	Inferential
LOC	Locative
MASC	Masculine
MIR	Mirative
N	Neuter
NEG	Negation
NMLZ	Nominalizer
NONEGO	Non-ego evidential
NONFIRSTH	Non-firsthand
NONVIS	Non-visual
O	O-like argument

Oc	Marker of O-construction type	REF	Referential
PRF	Perfective	SG	Singular
PST	Past tense	SPKR	Speaker
QUOT	Quotative	SYM	Symmetric
REC.P	Recent past	VIS	Visual
REP	Reported		

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Lexically triggered veridicality inferences

Aaron Steven White
University of Rochester

1. Introduction

Taken literally, the exchange in (1) seems an exercise in solipsism.

(1) **Bo:** I thought you were heading out to get groceries.
Jo: I remembered that I went a few days ago, but I'm now realizing I forgot to grab beer.

Imbuing (1) with coherence requires not a few steps of inference. These inferences involve not only Bo's beliefs and Jo's memories, but also what linguistic expressions of those mental states convey about the world – or at least, speakers' commitments thereof. For instance, beyond having a memory of a particular sort, we infer from (1) that Jo is committed to *actually* having gone to get groceries – and, if we take her (and her memory) to be reliable, that she actually went to get groceries. And beyond having a lack of memory of a particular sort, we infer from (1) that Jo is committed to *not actually* having gotten beer – and again, if we take her to be reliable, that she didn't actually get beer.

I refer to such inferences as *veridicality inferences*. In this article, I focus specifically on *lexically triggered veridicality inferences*, by which I mean inferences (i) whose premise includes (the meaning of) some *open class* lexical item (e.g. a noun, verb, or adjective) – potentially in interaction with (the meaning of) its syntactic context – and (ii) whose content is explicitly linguistically realized. For example, returning to (1), the inference about Jo's (commitment to) actually having gone to get groceries seems to be underwritten – at least in part – by her use of the verb *remember*; and its content is linguistically realized in *remember*'s subordinate clause (or *clausal complement*): *that I went a few days ago*. Similarly, the inference about Jo's (commitment to) not actually having gotten beer seems to be underwritten – again, at least in part – by her use of the verb *forget*; and its content is linguistically realized in *forget*'s subordinate clause: *to grab beer*.[1]

1. In the latter case, the content of the inference is of course not exhaustively realized in the subordinate clause *to grab beer*: At the very least, the negative component of the inference is plausibly

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Importantly, not all veridicality inferences are lexically triggered under this definition. For instance, most standard cases of presupposition triggers involve some veridicality inference or other: in (2), we infer from Bo's question (in conjunction with the cleft in Jo's response) that something *actually* bit Bo; we infer from the possessive in Jo's response that Mo *actually* owns (or is otherwise related to) a dog; we infer from the iterative *again* in Mo's response (in conjunction with Jo's assertion) that Mo's dog was *actually* the biter; and from the feminine pronoun in Mo's response, we infer that the dog is *actually* female. But these veridicality inferences are triggered by plausibly closed class items, such as pronouns (*she*) and iteratives/additives (*again)*, or bits of constructions composed of closed class items, such as interrogatives, clefts (*it was* ___ *that* ___), and possessives (__*'s* __); thus, they are not *lexically* triggered in the relevant sense.

(2) **Bo:** What just bit me?
Jo: It was Mo's dog that bit you.
Mo: And she'll do it again if you don't shut up.

Further, not all lexically triggered inferences are unambiguously veridicality inferences in the way Jo's having gone to get groceries is in (1). For example, in (3), Bo is in some sense committed to there actually being beer in the fridge, but assuming that Jo and Bo are similarly reliable, our inference from Bo's utterance in (3) is more tentative than our inferences from Jo's utterance in (1).[2]

(3) *In the context of (1)*
Bo: I think there's beer in the fridge.

While it may turn out that there is a unified explanation for all of the inferences so far discussed, I take the current approach to provide a useful cross-section of phenomena, whether one's goals are descriptive or explanatory in nature. With both types of goal in mind, I begin in Section 2 by discussing known axes of variation in when lexically triggered veridicality inferences arise. In Section 3, I turn to

encoded as knowledge (broadly construed) about the trigger *forget* itself; and whether or not the grabber is linguistically realized in the subordinate clause, separately from the realization of the forgetter, depends on one's syntactic theory. I include these cases under the definition given above, with the caveat that not all inferences involving such enriched versions of some linguistically realized contents are veridicality inferences, at least relative to that content. For instance, from (1), we also infer that Jo was supposed to (or had some plan to) grab beer, but having an obligation or plan to do something does not mean that thing was actually done.

2. See Urmson 1952; Hooper 1975; Asher 2000; Simons 2007; Hunter 2016; Koev 2018 on *parenthetical* uses of clause-embedding predicates, like those in (3), as well as their closely related s(entence)-lifted (Ross 1973) counterparts (see also Glass under review for a possibly related phenomenon in Chinese).

theoretical accounts that attempt to explain this variation within either a *conventionalist framework* – relying more heavily on knowledge about particular lexical items and how they compose to explain inferences – or a *conversationalist framework* – relying more heavily on knowledge of general communicative principles in conjunction with additional (non-linguistic) knowledge of the communicated content to explain inferences. In Section 4, I conclude with what I take to be the major open questions in this literature.

2. Variation in lexically triggered veridicality inferences

Standard methods for investigating variation in lexically triggered veridicality inferences across lexical items tend to focus on *projection tests*, which use *entailment cancelling operators* (Section 2.1). In addition to these tests, I discuss a variety of other known sources of variation (Section 2.2), including other semantic operators (Section 2.2.1) and extra-sentential contextual effects (Section 2.2.2).

Throughout this section, I attempt to remain as theory-agnostic as possible, deferring discussion of the exact nature and source of the inferences involved – e.g. whether a particular inference is implied by the content of a *presupposition*, *assertion*, etc. – to Section 3. This tack is slightly different from standard approaches to describing the data of interest here – where the boundary between a descriptive category, defined in terms of some set of empirical results, and an explanatory category, constructed as part of a system for explaining such theoretical results, is often not sharply delineated. My aim in avoiding such categories in this section is to delineate, as sharply as possible, the data to be explained from the theoretical apparatus used to explain it, with the hope that this better brings the major distinctions among different theoretical approaches (discussed in Section 3) into relief.

2.1 Variation relative to entailment cancelling operators

Much of the modern literature on lexically triggered veridicality inferences grows from earlier work on presupposition (Frege 1892/1997; Russell 1905; Strawson 1950). As such, much of what is known about variation in this domain has focused on entailment cancelling operators – such as negation, conditionals, questions, and various kinds of modal elements. As the name suggests, insertion of an entailment cancelling operator scoping over the content of the original sentence tends to result in a sentence whose use does not trigger all of the (necessary) inferences triggered by the original sentence. For example, the content of (5) is an inference triggered by the use of (4) in all contexts.

(4) Jo ate a sandwich.

(5) Jo ate something.

But negating (6), questioning (7), conditionalizing (8), or modalizing (9) example (4) results in sentences whose use no longer triggers the inference that (5).

(6) Jo didn't eat a sandwich.

(7) Did Jo eat a sandwich?

(8) If Jo ate a sandwich, she won't be hungry.

(9) Jo may have eaten a sandwich.

When the insertion of such an operator does not nullify (or *cancel*) some inference, the inference is often said to *project* through that operator (Morgan 1969; Langendoen & Savin 1971). As I discuss below, cancellation and projection are only two of multiple possibilities for how entailment cancelling operators affect inferences of a sentence not containing that operator.

2.1.1 *Matrix negation*

Uses of both (10) and its modification in (11) are commonly judged to trigger the inference that the speaker actually went to the grocery store.

(10) I remembered that I went to the grocery store.

(11) I didn't remember that I went to the grocery store.

This contrasts with the effect of inserting a negation into the embedded clause: from (12), we infer that the speaker didn't go to the grocery store.

(12) I remembered that I didn't go to the grocery store.

This pattern of inferences can be captured by saying that, from any use (by a trustworthy speaker) of a sentence *X remember S* or *X not remember S*, one should infer *S*. This description simultaneously captures the fact that uses of both (10) and (11) trigger the inference that the speaker went to the grocery store as well as the fact that uses of (12) trigger the inference that the speaker did not. Following Kiparsky and Kiparsky 1970, any lexical item that shows this pattern – e.g. *know*, *discover, regret*, etc. – is termed a *factive*.

One difficulty that immediately arises for such classifications – even ones based just on the contrast between sentence pairs like that in (10) and (11) – is that at least some lexical items do not show stable inferences across syntactic contexts. For instance, we clearly do not infer from (13) that the speaker went to the grocery store; indeed, we tend to infer that they did not.

(13) I didn't remember to go to the grocery store.

This is initially surprising, since we draw the same inference from (14) that we do from (10).

(14) I remembered to go to the grocery store.

Related patterns can be seen cross-linguistically. For instance, in Modern Greek (Varlokosta 1994; Giannakidou 1998; 1999; 2009; Roussou 2010), Persian (Farudi 2007), Hungarian (Abrusán 2011), Hebrew (Kastner 2015), and Turkish (Ozyildiz 2017), veridicality inferences are sensitive to the presence of nominal(izing) morphology attached to verbs or their clausal complements – often taking the form of a pronoun, definite determiner, or demonstrative in the language.

These observations suggest the need to specify an inference signature, not for lexical items themselves, but for lexical items in some linguistic context (P. Schulz 2003; Kratzer 2006; Moulton 2009; White 2014; Bogal-Allbritten 2016) – e.g. one for *remember* with a tensed clausal complement (*remember that*), as in (10) and (11), and one for *remember* with an infinitival complement (*remember to*), as in (13) and (14). I henceforth refer to such combinations of lexical items with their linguistic context as *constructions*, though this terminological choice should be taken only as descriptive shorthand, not as a commitment to a constructionist view (Goldberg 2013).

Thus, the *remember that* construction is *factive*, while the *remember to* construction is not. Following Karttunen 1971a, nonfactive construction that nonetheless trigger veridicality inferences – e.g. *remember to* – are termed *implicatives*. Because this contrastive definition encompasses many logically possible inference patterns – depending not only on whether the lexical item is negated (i.e. has *negative matrix polarity*) or not (i.e. has *positive matrix polarity*), but also whether the inference that is triggered involves negation or not – it is useful to define a shorthand for possible patterns.

Such a shorthand is proposed by Nairn, Condoravdi, and Karttunen (2006) in the form of *implication signatures* (see also MacCartney 2009; Karttunen 2012). Implication signatures aim to capture the behavior of a lexical item (in a particular syntactic context) by specifying two trits (trinary digits) of information. The first trit specifies whether a particular lexical item triggers an inference when found in a positive polarity matrix clause, and if so, whether that inference is positive (+) or negative (–); and the second specifies whether a particular lexical item triggers an inference when found with negative matrix polarity, and if so, whether that inference is positive (+) or negative (–). Thus, factives, like *remember that*, have the implication signature ++; and implicatives like *remember to* have the implication signature +–.

This system implies $3^2 = 9$ possible implication signatures, all of which are attested (more or less robustly) – at least in English. For example, the inverse of the signature

of *remember to* (–+) – the signature of *fail to*, *neglect to*, and *forget to* – is exemplified in (15) and (16). From (15), we infer that the speaker did not grab beer; but from (16), we infer they did.

(15) I {failed, neglected, forgot} to grab beer.

(16) I didn't {fail, neglect, forget} to grab beer.

Constructions that have either of the two signatures (+–, –+) are together called the *two-way implicatives* (Karttunen 1971a). These are contrasted with *one-way implicatives*, which only trigger a positive (+) or negative (–) inference with one matrix polarity – the lack of an inference in a particular direction being marked by ∘. There are four such combinations (+∘, –∘, ∘+, ∘–), wherein lexical items with + for their first trit are sometimes termed *(objective) veridical* (Giannakidou 1994, 1998, 1999, 2001; Zwarts 1995; Egré 2008; Anand & Hacquard 2014; Spector & Egré 2015) and those with – for their first trit are sometimes termed *(objective) antiveridical* (Giannakidou 1998).

(17) +∘ **structures:** *prove that, show that*

(18) –∘ **structures:** *pretend that, hallucinate that*

(19) ∘+ **structures:** *hesitate to*

(20) ∘– **structures:** *think to, know to*

The last two signatures implied by this system are sometimes referred to as the *antifactives/counterfactive* (– –) and the *nonveridicals/nonfactives* (∘∘). The former class is relatively sparsely populated in English – with *pretend to* being one of the few candidates (Givón 1973) – but the latter is quite large, encompassing many doxastic (belief) and communicative predicates, such as *believe that, think that, say that/to, claim that/to, assume that, suppose that*, etc. (White & Rawlins 2018; White et al. 2018).[3]

2.1.2 *Conditionals and interrogatives*

It has long been known that lexically triggered veridicality inferences do not respond uniformly to all entailment cancelling operators. For instance, Karttunen (1971b) observes that some constructions that appear to be factive under the negation test (21) do not trigger veridicality inferences when within the scope of questions (22) and conditionals (23).

3. See Nairn, Condoravdi and Karttunen 2006; Karttunen 2012; Lotan, Stern and Dagan 2013; White & Rawlins 2018; White et al. 2018 for attempts at an exhaustive classification of the implication signatures of English lexical items, and see Falk and Martin 2017 for a similar attempt in French. See Pavlick and Callison-Burch 2016; Rudinger, White and Van Durme 2018 for methods to automatically extract predicates that fall under these signature from text corpora.

(21) John didn't {regret, realize, discover} that he has not told the truth.

(22) Did you {regret, realize, discover} that you had not told the truth?

(23) If I {regret, realize, discover} later that I have not told the truth, I will confess it.

According to Karttunen, constructions like *discover that*, *find out that*, and *see that* do not trigger veridicality inferences within the scope of a question, even though they do under negation. This pattern contrasts with the one observed for *regret* and *realize*, which trigger veridicality inferences in both contexts.

Karttunen furthermore suggests that, while *realize that* patterns with *regret that* relative to negation and questions, it patterns with *discover that* relative to conditionals. Insofar as such judgments are robust, this variability potentially suggests a need to specify two further trits in an implication signature – one for questions and another for conditionals – resulting in $3^4 = 81$ logically possible signatures. To my knowledge, it is not known whether all possible signatures in this expanded set are attested – and depending on one's theoretical position, this may not be a particularly useful question to ask (see discussion of conversationalist approaches in Section 3).

In practice, it is common to follow Karttunen 1971b in only drawing a distinction among two subclasses of factives: the *true factives* – e.g. *regret that, be happy that, be a bummer that* – which tend to involve an emotive component and purportedly do not show variability in whether they trigger veridicality inferences under different entailment cancelling operators;[4] and the *semifactives* – e.g. *discover that*, *realize that*, *find out that* – which tend not to involve an emotive component and do show such variability (Hooper & Thompson 1973; Hooper 1975; Simons 2007; Egré 2008; Beaver 2010; Djärv, Zehr & Schwarz 2018).[5] True factives are often assimilated with the more general class of *hard triggers*, whose inferences are relatively stable across environments; and semifactives are often assimilated with the more general class of *soft triggers*, whose inferences are more variable (Abusch 2002, 2010; Abbott 2006; Romoli 2011, 2014; cf. Abrusán 2011, 2016; Tonhauser, Beaver & Degen 2018).

2.1.3 *Modal elements*

Lexically triggered veridicality inferences can also vary with the kinds of modal element that scope over them. For instance, note that (24) triggers the veridicality

4. A small minority of authors deny that emotive predicates trigger veridicality inferences, instead arguing that they only trigger inferences about the beliefs of the emotion's experiencer (Schlenker 2005; Egré 2008). This is often attributed to Klein 1975 (Abrusán 2011; Anand & Hacquard 2014). See Djärv, Zehr and Schwarz 2018 for an experimental investigation of this question.

5. The term *semifactive* tends to cover both constructions like *realize that* and *discover that*, even though those constructions purportedly differ with respect to which entailment cancelling operators they trigger veridicality inferences under.

inference that Bo smokes, and this does not change with the insertion of the modal auxiliary *may* in (25) – i.e. the veridicality inference triggered by *acknowledge* projects through *may*.

(24) Bo acknowledged that he smokes.

(25) Bo may acknowledge that he smokes.

Similar to *may*, the inference apparently projects through the subordinate clause-taking predicate *force* in (26); but unlike *force*, the predicate *order* in (27) – even in the same syntactic context – appears to block the inference (Karttunen 1973).

(26) Jo forced Bo to acknowledge that he smokes.

(27) Jo ordered Bo to acknowledge that he smokes.

This may be related to the fact that *order* does not trigger veridicality inferences itself, while *force* does; but this cannot be the entire explanation, since *may* does not block the projection of some veridicality inferences, acting similarly to *force*. Such patterns lead Karttunen (1973) to classify lexical items not only by their veridicality inferences – as factives, implicatives, etc. – but also by whether they are *holes*, *plugs*, or *filters*.

A hole is any construction that, like *force NP to*, does not alter an inference triggered by the content it scopes over; a plug is any construction that, like *order NP to*, that blocks an inference that would be so triggered; and a filter is a construction that acts like a hole under certain conditions and a plug under others. Karttunen characterizes holes as generally being factive, implicative, or aspectual predicates and plugs as generally being communicative predicates and (possibly) all other propositional attitude verbs that do not fall into the class of holes. Filters for him only include a small set of functions items, including conditionals, conjunction, and disjunction, and so I do not discuss them here.

2.2 Other conditions on variation

While the behavior of lexically triggered veridicality inferences with entailment cancelling operators is by far the most well-studied, these inferences are also known to be sensitive to other semantic operators (Section 2.2.1), and there is a growing body of work investigating the role of contextual factors in determining whether or not veridicality inferences are triggered (Section 2.2.2).

2.2.1 *Other semantic operators*

Since at least Karttunen 1971a, it has been known that certain kinds of modal predicates sometimes trigger veridicality inferences. For instance, *be able* in (28) triggers the inference that the quarterback completed exactly two passes; and in (29), *be able* triggers the inference that the quarterback did not complete any passes.

(28) The quarterback was able to complete exactly two passes.
(compare Karttunen's Example 46)

(29) The quarterback wasn't able to complete any passes.

Thus, *be able* appears to be some sort of implicative. But what kind of implicative is it? At least the inference triggered by (28) is felt to be weaker, in some sense, since being able to do something does not imply doing it. Karttunen (2016) suggests that *be able* is not alone in this pattern, citing some other implicatives that follow it: *refuse to* () in (30), tends to trigger the inference that Ann spoke up, while *not force to* in (31) and *hesitate to* in (32) tend to trigger the inference that Ann didn't speak up.

(30) Ann didn't refuse to speak up. (Karttunen's 15b)

(31) Ann was not forced to speak up. (Karttunen's 15c)

(32) Ann hesitated to speak up. (Karttunen's 15d)

Interestingly, the weakness of one-way implicatives' inferences in a particular direction is not true in many Indo-European languages with a morphologically realized grammatical aspect distinction: when the ability modal (Bhatt 1999) along with other non-epistemic modals (Hacquard 2006; 2009) and propositional attitude predicates (Hacquard 2008) are combined with perfective aspect, the veridicality inference of sentences like (28) is always triggered; but when they are combined with imperfective aspect, they are not (cf. Mari & Martin 2007; Homer 2010; see also Hacquard's rebuttal, to appear). This phenomenon – which is often referred to as *actuality entailment* (Bhatt 1999) – is attested in at least Modern Greek (Bhatt 1999; Giannakidou & Staraki 2013), Hindi (Bhatt 1999), French (Hacquard 2006; Mari & Martin 2007; Homer 2010), Italian (Hacquard 2006), and Spanish (Borgonovo & Cummins 2007).[6] Further, this interaction with aspect appears to extend beyond modal predicates and Indo-European: (Spector & Egré 2015) present a contrast in Hungarian (attributed to Márta Abrusán) between *tell* with perfective aspect, which always triggers the inference that the content of its embedded clause is true, and *tell* with imperfective aspect, which does not.

In addition to such morphologically realized conditions, prosodic factors also affect whether certain veridicality inferences are triggered. For instance, Beaver (2010) notes that if intonation signals focus on a factive, as in (33b) and (33d), the veridicality inference is generally triggered; but if intonation signals focus on the clause carrying the content of the veridicality inference, as in (33a) and (33c), it generally is not (see also Beaver and Clark 2008 and see Tonhauser 2016 for experimental corroboration; cf. Djärv & Bacovcin 2017).

6. Bhatt lists additional languages where similar patterns purportedly hold (Chapter 5, fn. 4).

(33) Beaver's (2010) Example 73
   a. If I discover that your work is [plagiarized]$_F$, I will be [forced to notify the Dean]$_F$.
   b. If I [discover]$_F$ that your work is plagiarized, I will be [forced to notify the Dean]$_F$.
   c. If the T.A. discovers that your work is [plagiarized]$_F$, I will be [forced to notify the Dean]$_F$.
   d. If the T.A. [discovers]$_F$ that your work is plagiarized, I will be [forced to notify the Dean]$_F$.

As Beaver (p. 93) puts it:

> Example [a] suggests the professor has a suspicious mind, but that the student may be innocent. In contrast, [b] suggests that the student is innocent, but that the professor is prepared to act as if she had not made the discovery[…]or else that the professor is mad. [c] does not imply that the student is guilty. And finally, [d] conjures up an image of complicity between the all-knowing professor and the guilty student.

2.2.2 *Contextual conditions on variation*

While standard classifications rely mainly on diagnostic tests based on entailment cancelling operators, there are now a menagerie of other contextual factors that have been noted as conditioning whether a veridicality inference is triggered by a particular construction. One prominent case of this is noted by Stalnaker (1974): a change in the subject of a predicate can modulate veridicality inferences. For instance, while the content of is the same as that of (34b) – when (34b) is spoken by Pavarotti – (34a) seems to trigger the inference that Loren is in New York, while (34b) does not.

(34) Chierchia and McConnell-Ginet's (1990) Example 73
   a. If Pavarotti discovers that Loren is now in New York, he will be angry.
   b. If I discover that Loren is now in New York, I'll be angry. (Pavarotti is speaker.)

This pattern is plausibly connected to the more general observation that veridicality inferences are not triggered when the speaker is assumed to not know whether the content of the would-be inference is true (Karttunen 1974; Gazdar 1979; Levinson 1983; Geurts 1994; Simons 2001). For instance, aspectual predicates like *start, begin, stop, finish*, and *continue* are often judged to give rise to inferences about a state (not) holding before the event denoted by the predicate (Sellars 1954; Newmeyer 1969) – e.g. the use of (35) tends to trigger the inference that the speaker used to smoke but no longer does.[7]

(35) I recently stopped smoking.

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7. They also trigger inferences about a state (not) holding after the event denoted by the predicate. This *post-state* inference appears to be unlike the *pre-state* inference in being more sensitive to entailment cancelling operators. I return to this point in Section 3.

Further, these predicates initially appear to trigger these inferences under the entailment cancelling operators already discussed – e.g. (36) and (37) tend to trigger the same inference as (35); and (37) additionally triggers the inference that the addressee currently smokes.

(36) I can't stop smoking.

(37) If I stop smoking, will you stop smoking?

But when the context is varied only slightly – e.g. if the speaker is unfamiliar with the addressee as implicated in (38) – these inferences are not triggered: as Simons (2001) notes, the interrogative in (38) can be roughly paraphrased as (39).

(38) I notice that you keep chewing on your pencil. Have you recently stopped smoking? (Simons' Example 1)

(39) Is it the case that you have recently been a smoker and have recently ceased to be one? (Simons' Example 2)

This pattern suggests that ignorance about the truth or falsity of an inference that would otherwise be triggered by some construction is enough to not trigger that inference – at least for some constructions (e.g. semifactives and aspectuals).

In addition to properties of a speaker's epistemic or doxastic state, certain aspects of the content of a veridicality inference have also been argued to be relevant. For instance, Karttunen et al. (2014) suggest that the emotive valence of evaluative adjectives interacts with the contextually determined valence of the content of a clause to result in distinct inferences (see also Karttunen 2013): if the valence of an evaluative adjective complement is *consonant* with the assumed valence of the property described by its complement (40), they suggest that +– (implicative) inferences are triggered; and if not (41), they suggest, ++ (factive) inferences are triggered.

(40) I am not saying that I was not stupid to have trusted someone because they were family but it doesn't mean that they should get away with it. (Karttunen et al.'s Example 7a)

(41) I was not fortunate to be born with long and beautiful eyelashes like many women. (Karttunen et al.'s Example 8b)

It remains an open question to what extent this observation is related to other contextual factors, such as those discussed earlier in this section.

3. Explanatory approaches

Explanatory approaches to lexically triggered veridicality inferences lie along a continuum with extreme *conventionalism* on the one pole and extreme *conversationalism* on the other. Under approaches on the conventionalist extreme of this continuum

(Katz & Langendoen 1976), all lexically triggered veridicality inferences arise from knowledge about particular lexical items and how they compose. Under approaches on the conversationalist extreme (Stalnaker 1973, 1974), all lexically triggered veridicality inferences arise from knowledge of general communicative principles in conjunction with additional (non-linguistic) knowledge of the communicated content.

In practice, most extant proposals lie somewhere in between these two extremes. Indeed, extreme conventionalism, in particular, has largely been abandoned since the 1970s because of its inability to handle the sorts of variability discussed in Section 2 (see Levinson 1983, Section 4.4.1 and references therein). Nonetheless, this continuum remains useful for structuring discussion, and so I partition approaches into conventionalist (Section 3.1) and conversationalist (Section 3.2), based roughly on the relative reliance on lexical and compositional knowledge for triggering veridicality inferences.[8]

3.1 Conventionalist approaches

The key conventionalist conceit is that it is knowledge *about* lexical items *qua* linguistic objects that drives lexically triggered veridicality inferences. And since (Stalnaker 1973, 1974; Karttunen 1974), it has been recognized that a *sine qua non* of any conventionalist account is that it provide a theory that links such knowledge with the communicative acts a speaker performs (see also Wilson 1975; Kempson 1975; Boër & Lycan 1976; cf. Katz & Langendoen 1976). In general, this explanation takes something like the following form: lexically triggered veridicality inferences arise via reasoning about what the speaker must commit themselves to – and in many cases, furthermore taken as entailed by (or at least consistent with (Gazdar 1979; Levinson 1983)), what is commonly agreed on – in using a particular expression.

This position naturally captures inferences that are invariantly triggered by an expression across contexts of use – i.e. *entailments* – but the explanation gets somewhat trickier for inferences that only appear to be triggered in particular syntactic structures or contexts of utterance – i.e. that are *defeasible* – as discussed in Section 2. A major commitment of a conventionalist approach is that, unlike *conversational implicatures* (Grice 1989), which are triggered any time the same content is expressed under particular contextual conditions, at least some lexically triggered veridicality inferences are *detachable* – i.e. in principle, synonymous constructions could differ in their lexically triggered veridicality inferences.

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8. Due to space constraints, I do not discuss in detail different formal syntactic and semantic accounts of how linguistic expressions of interest here – generally, predicates that combine with subordinate clauses – come to have the particular semantic properties that they do. See Grano in prep for a recent overview of relevant literature on such subordinate clause-taking predicates.

This literature has largely been split between investigations of factive constructions and investigations of implicative constructions. This split arises in part from the fact that at least some of the veridicality inferences triggered by factive constructions – henceforth *factive inferences* – are backgrounded (and potentially furthermore *presupposed)* in some intuitive sense, while veridicality inferences triggered by implicative constructions – henceforth *implicative inferences* – are (generally) foregrounded in some intuitive sense. I thus discuss explanatory approaches to factive inferences (Section 3.1.1) and implicative inferences (Section 3.1.2) separately, attempting (where possible) to draw connections between these approaches.

3.1.1 *Factive inferences*

In prominent early accounts, factives' lexically triggered veridicality inferences are explained by assigning a particular construal to meaning postulates, which associate lexical items (or constructions thereof) directly with the desired implications (Karttunen & Peters 1979; Gazdar 1979). For example, Karttunen (1971b) gives (42) as a meaning postulate for *discover* that is generalizable to other semifactives – i.e. those factives whose veridicality inferences are more variable across semantic operators – and (43) as a meaning postulate for *regret* that is generalizable to other true factives – i.e. those factives whose veridicality inferences remain relatively stable across semantic operators. Thus, insofar as some sentence containing a true factive *V* implies *it is possible that x (not) V S* for some *x* and *S*, that sentence is predicted to trigger the inference that *S*. In contrast, given just these postulates, semifactives are predicted to only trigger veridicality inferences when unembedded or when scoping under negation (and no other operator).

(42) Karttunen's Example 11
   a. ∀x: ∀s: x *discover* s **implies** s
   b. ∀x: ∀s: x *not discover* s **implies** s

(43) Karttunen's Example 11'
   a. ∀x: ∀s: *it is possible that* x *regret* s **implies** s
   b. ∀x: ∀s: *it is possible that* x *not regret* s **implies** s

Karttunen and Peters' (1979) solution is to posit a new dimension on which expressions can compose: in addition to an *extension expression*, which determines an expression's truth conditional content, they posit an *implicature expression*. Meaning postulates such as (42a) are then directly imported into implicature expressions, with *implies* being converted to *conventionally implicates* (terminology due to Grice 1989; see Potts 2005 for an updated version of this sort of approach). A crucial component of Karttunen and Peters' system is that defeasibility of a veridicality inference is strictly a product of the conventional implicature dimension, and so the system necessarily gets

more complicated when importing meaning postulates like (42b), since Karttunen and Peters must posit (i) that negation is ambiguous between a form that supports projection and one that doesn't (see Horn 1972, 1989); and (ii) that this form only occurs with some predicates but not others. Importing the meaning postulates in (43) gets even hairier, since it requires similar ambiguities for *it is possible that* and a corresponding specification of which *it is possible that* cooccurs with which negation. Nonetheless, it is technically possible to get this part of the system working. Where this system falters most is in incorporating defeasibility based on contextual conditions, like those discussed in Section 2.

Gazdar (1979) provides a potential solution to this problem that is similarly multidimensional but attempts to explain contextual conditions via general principles determining when an inference is not triggered when it otherwise might have been – i.e. when it is *cancelled*. In short, Gazdar posits a strict priority ordering on (potential) inferences: conventional, defeasible inferences are only triggered if they are consistent with (i) the mutually agreed upon commitments of the interlocutors (the *context*); (ii) the entailments of the utterance; (iii) the clausal implicatures of the utterance; and (iv) the conversational implicatures of the utterance (relative to the current context). If any inference that comes later in the ordering is inconsistent with the accumulation of inferences coming earlier, that inference is not triggered.

Gazdar's proposal portends a shift toward blending aspects of the conventionalism and conversationalism: though it posits that all lexically triggered veridicality inferences are at root a product of lexical knowledge, contextual factors may manipulate whether that lexical knowledge is activated. This shift continues in two influential proposals by Heim (1983b, 1992) and Van der Sandt (1992), which both aim to refactor the conventional source of factive inferences.[9]

3.1.1.1 Common ground approaches

Heim (1983b) argues that associating expressions with implications that are, in principle, independent of their content – as Karttunen and Peters (1979) and Gazdar (1979) do – misses generalizations about the relationship between an expression's content and those inferences. To remedy this, she proposes to bind these two kinds of knowledge together under a single form of conventional knowledge within a dynamic semantics framework: *context change potentials*. Within this framework, lexical items are associated with partial functions that determine how their use updates a *context* – a formalization of Lewis' (1969) notion of a *common ground* in terms of possible worlds.

9. I do not discuss the distinction between Heim and van der Sandt's *dynamic theories* and *transparency-based theories* (Schlenker 2008, 2009, 2010), which present a strongly conventionalist alternative based in classical logic, instead referring the interested reader to Schlenker 2011a, 2011b.

Specifically, contexts are formalized as sets of possible worlds compatible with what is commonly accepted among conversational participants,[10] and updating a context with a particular expression entails applying that expression's context change potential to the context in order to yield a new one. This update will generally result in further constraining the set of possible worlds that are compatible with what has been accepted as common ground by the conversational participants.

Heim (1992) explores two different ways that this system may give rise to lexically triggered veridicality inferences, focusing mainly on cases of projection through entailment cancelling operators. The first is to encode a *definedness condition* as a part of a lexical item's context change potential that requires that any inference that that lexical item triggers must be entailed by the current context. Another way of saying this in her system is that updating the current context with the content of a particular inference results in the same context. In contexts where such entailment does not hold, *accomodation* (Lewis 1979; see also Beaver & Zeevat 2007 and references therein) of the content of the inference is then necessary (Heim 1983b) – i.e. the context must first be updated with that content before applying the context change potential of the sentence to the result. Under her system, this accommodation is what gives rise to at least some lexically triggered veridicality inferences – specifically, those of factive predicates.

Heim (1992) also suggests an alternative route to generating lexically triggered veridicality inferences.[11] Following Karttunen 1974, she notes that, *prima facie*, (44) seems to trigger both the inference that Patrick has a cello and the inference that Patrick believes he owns a cello.

(44) Patrick wants to sell his cello. (Heim's Example 1)

The former inference – which seems likely to be triggered by the possessive *his* – does not arise in certain contexts, such as (45); only the weaker inference that Patrick believes he owns a cello does.

(45) Patrick is under the misconception that he owns a cello, and he wants to sell his cello. (Heim's Example 2)

This behavior raises the question where the stronger inference of (44) comes from when not in contexts like that in (45). Elaborating on an idea of Karttunen's (see also

10. For (Heim 1982, 1983a, 1983b), they are in fact sets of pairs of worlds and assignments of indices to individuals. This more complicated system is necessary for capturing presuppositions of quantified statements – among other phenomena – and is not strictly necessary for understanding her approach to lexically triggered veridicality inferences.

11. In fact, she suggests two alternative routes. I do not discuss her other alternative, which relies on smuggling veridicality inferences in via *de re* interpretations (see Section 5.1), largely because it is generally viewed as a nonstarter (Geurts 1998).

Kay 1992), Heim suggests that there is "spill-over" from beliefs (*local contexts*) to the *global context* – i.e. the representation of the conversational participants shared commitments. To illustrate this, she notes that one tends to infer from (46) that the speaker is committed to it in fact having been raining, even though strictly speaking, they are only committed to John having such a belief.

(46) John believes that it stopped raining. (Heim's Example 66)

She then suggests (p. 212) that…

> …when we hear (66) out of the blue, we know two things: first, as a matter of the semantics of this sentence, we know that it requires the presupposition that John believes it was raining. Second, we know that the speaker takes this to be uncontroversial and unsurprising. Now why would it be unsurprising that John has such a belief? The most natural guess is that it would be unsurprising because it was in fact raining and John was in an appropriate position to find out.

Anand and Hacquard (2014) give a similar account of the inferences triggered by communicative predicates as part of their generalization that only doxastic predicates – e.g. *know, be aware, see* – but not communicative predicates – e.g. *say, tell, demand* – are factive. In particular, they argue that predicates describing response-stance discourse moves (Cattell 1978), such as *admit*, *acknowledge*, and *confirm* – which they report as the only attested cases of factive communicative predicates – do not have veridicality inferences that are encoded as constraints on the global context. They claim that apparent veridicality inferences from uses of such sentences arise via spill-over from the discourse that a communicative predicate describes a particular discourse move in and the discourse in which that move is reported.

(47) Does the book {acknowledge, admit, confirm} that Mary is the murderer? (Anand and Hacquard's Example 14)

Anand and Hacquard's proposal is abstractly similar to Heim's proposal in that both assume that some sort of default reasoning process causes aspects of some local context – e.g. a belief context or reported common ground – to be merged with aspects of the global context.

3.1.1.2 Anaphoric approaches

Under van der Sandt's (1992) proposal all "[p]resuppositions are simply anaphors. They only differ from pronouns or other kinds of semantically less loaded anaphors in that they contain enough descriptive content to establish a reference marker in case discourse does not provide one" (p. 345). Thus, in the particular case of factives, their use involves reference to some familiar contentful abstract object (see Asher 1993; Spenader 2003). And when such an object cannot be found, factive inferences come about as a consequence of constructing that object via a process of accommodation,

which is abstractly similar to Heim's (though necessarily different in detail), using a notion of recursively embedded discourse structures formalized within Discourse Representation Theory (Kamp & Reyle 1993; see also Zeevat 1992; Beaver 1995). And like Heim, van der Sandt explains variability in whether a factive inference is triggered via a process of local accommodation within some embedded discourse structure.

This proposal has clear affinity with the proposal put forth by Kiparsky and Kiparsky (1970), wherein the subordinate clause in a factive construction is derived from a complex noun phrase headed by *fact* – i.e. (48) is derived from something with the same structure as (49).

(48) Jo knows that Bo left.

(49) Jo knows the fact that Bo left.

One (though not the only) way to construe van der Sandt's approach for factive constructions in particular thus reduces to saying that factive inferences are triggered not directly by open class lexical items like *know*, but by some component of the construction that those open class lexical items cooccur with. Conversely, under this proposal, open class lexical items like *think* would not be able to cooccur with this component.

One question that arises is what this component might be? In Kiparsky and Kiparsky 1970, it is some other special open-class item – a silent version of the subordinate clause-taking noun *fact*. Other approaches in this vein instead associate the complementizer *that* (or some null counterpart) with the inference (Kratzer 2006; Moulton 2009; Sheehan & Hinzen 2011; Bogal-Allbritten 2016), while yet others assume that, in addition to a complementizer, subordinate clauses in factive constructions can have (sometimes covert) definite determiners that trigger the veridicality inference (Takahashi 2010; Kastner 2015; cf. P. Schulz 2003; Ozyildiz 2017). This last approach has initial support from the cross-linguistic evidence discussed in Section 2.1, wherein veridicality inference correlated with the presence of a definite determiner or demonstrative near the complementizer in a subordinate clause.

3.1.2 *Implicative inferences*

Unlike early approaches to factive inferences, early approaches to implicative inferences do not assume direct encoding of the veridicality inference in a meaning postulate – rather relying on deductive reasoning to generate the inference. For instance, Karttunen (1971a) gives the following template for +– implicatives – where *v* might be replaced by, e.g., *manage*.

(50) Karttunen's Example 37
   a. PRESUPPOSITION: *v(S)* is a necessary and sufficient condition for *S*.
   b. PROPOSITION: *v(S)*.

This ensures that…

> …if the main sentence is an affirmative assertion, it states, according to the speaker's supposition, that a sufficient condition for the truth of the complement sentence is fulfilled. Thereby the speaker indirectly asserts that the complement is also true. A negative assertion claims that a necessary condition for the truth of the complement is not fulfilled; therefore it must be false. If the main clause is questioned, the speaker must be ignorant of whether the complement sentence by itself would make a true assertion. (p. 352)

A similar pattern can be used to capture any subtype of implicative by manipulating the nature of the presupposition – e.g. (51) for −+ constructions, (52) for ∘−, and (53) for +∘.

(51) Karttunen's Example 41
   a. PRESUPPOSITION: *v(S)* is a necessary and sufficient condition for ~*S*.
   b. PROPOSITION: *v(S)*.

(52) Karttunen's Example 54
   a. PRESUPPOSITION: *v(S)* is a necessary condition for *S*.
   b. PROPOSITION: *v(S)*.

(53) Karttunen's Example 59
   a. PRESUPPOSITION: *v(S)* is a sufficient condition for *S*.
   b. PROPOSITION: *v(S)*.

One problem with this account is that it is a bit *just so* in that the proposed necessity/sufficiency inferences are not independently justified. For instance, the inferences triggered by a use of *manage* or *fail* seem to involve a range of contextually determined modalities – including effort and intention (Karttunen 1971a), but also difficulty or unlikelihood (Coleman 1975) – none of which are necessary or sufficient conditions.

Aiming to further delve into the relationship between the presuppositional and propositional components of implicative predicates, Baglini and Francez (2016) present a modification of Karttunen's proposal. Their proposal has two components, which interact to give rise to implicative entailments. The first component is similar to (50a): *manage p* triggers an inference that there is some lexically underspecified (but familiar) causally necessary but causally insufficient *catalyst* for bringing about *p* – e.g. effort on the part of the manager. The important difference from (50a) is that the catalyst need not be some event of managing itself, but rather some piece of the causal puzzle – e.g. effort, intention, etc. – for how *p* might come about.[12] The second component is also similar to (50b): a sentence containing *manage* entails that the aforementioned catalyst

12. Baglini and Francez (2016) develop a rich model of causal dynamics based on K. Schulz 2011, which I do not discuss here, since this intuitive description is sufficient for current purposes. For alternative models of such dynamics and their relation to language, see Copley 2019 and references therein.

did in fact cause *p* to be true. Therefore, *manage p* entails *p*. This proposal also explains why *not manage p* entails *not p* since the catalyst is causally necessary, if it does not bring *p* about, then *p* is not true.

As it stands Baglini and Francez's proposal only handles two-way implicatives like *manage*, whose implicative direction and matrix polarity match. Nadathur (2016) modifies it to capture inverted two-way implicatives (–+), like *fail* and *neglect*, and one-way implicatives. Her basic idea is a natural integration of Karttunen's and Baglini and Francez's. For Nadathur, all implicatives at least presuppose causal necessity of some catalyst, but in contrast to Baglini and Francez's *manage*, two-way implicatives furthermore presuppose causal sufficiency of that catalyst – i.e. that that catalyst is the "only open prerequisite" (p. 1012). The addition of the causal sufficiency presupposition for two-way implicatives would leave Baglini and Francez's explanation for the entailments of *manage* intact, since that proposal relies only on *manage* presupposing causal necessity. But since Baglini and Francez's proposal explains the entailments of *manage* with only the causal necessity presupposition, Nadathur's approach must explain why one-way implicatives, like *be able*, are not two-way, like *manage*.

To do this, Nadathur proposes that, rather than being used to assert that a contextually available catalyst actually caused *p*, implicatives are only used to assert that those catalysts hold. But because two-way implicatives make reference to causally necessary and sufficient catalysts, existence of the catalyst is enough to capture the positive and negative implicative directions of *manage* (and potentially *fail*).[13] It furthermore predicts that, if a predicate only presupposes causally necessary catalysts, it only has a single implicative direction. For instance, the negative implicative direction of *be able* under Nadathur 's account is negative, since *be able* asserts that a particular causally necessary catalyst – i.e. ability – does not exist. And it has no positive implicative direction, since we cannot conclude from the existence of a single causally necessary catalyst, such as ability, that *p* is true.

Inverted (–+) implicatives – e.g. *fail* – are captured by saying that a verb can presuppose causal necessity and sufficiency for *not p*. Thus, Nadathur's system straightforwardly predicts inverted two-way implicatives, like *fail*, as well as inverted one-way implicatives, like *hesitate*, whose negative implicative direction is positive: (54b) entails (55a) but (54a) does not entail (55b).[14]

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13. The specifics of Nadathur's account of two-way implicatives are more complicated. She does not employ a notion of sufficiency directly, rather relying on a form of circumscription reasoning (McCarthy 1980), implemented using exhaustification (see also K. Schulz & Van Rooij 2006) and resulting in a form of conditional perfection (Geis & Zwicky 1971).

14. One place this proposal fails is that it cannot capture one-way implicative with positive implicative direction. Indeed, unmodified, it predicts such verbs should not exist. This prediction is incorrect for verbs like *refuse*, which have no negative implicative direction but whose positive implicative direction is negative.

(54) a. John hesitated to join the fray.
b. John didn't hesitate to join the fray.

(55) a. John joined the fray.
b. John didn't join the fray.

Combined, these proposals also potentially provide traction on a phenomenon that was noted by Bhatt (1999) for predicates like *be able* but which appears general to one-way implicatives: though one-way implicatives only have a single implicative direction, they tend to trigger sometimes quite strong inferences in the other direction. Karttunen (2012) likens this inference to the one seen in *conditional perfection* (Geis & Zwicky 1971), and Nadathur (2016) suggests that this is a consequence of pragmatically strengthening a necessary condition to a sufficient condition (see Karttunen 2016, Section 3.3.1 for a closely related account).

It is somewhat unclear, however, how this syncs with the observation that, in at least some other languages, grammatical aspect modulates whether one gets a veridicality inference with *root* (*non-epistemic) modals*, like *be able* (Bhatt 1999) and *have to* (Hacquard 2006), as well as some propositional attitude predicates, such as *want* (Hacquard 2008). These inferences are often referred to as *actuality entailments* because, in contrast to those triggered by English *be able* with negative polarity, they are nondefeasible – in contrast to conditional perfection inferences. There is a large literature on the syntactic and semantic conditions that give rise to actuality entailments that I do not discuss here, instead referring interested readers to Hacquard to appear and Giannakidou and Mari to appear, Chapter 6.

In addition to actuality entailments, it is also unclear how the Baglini and Francez-Nadathur proposal captures predicates that evoke coincidence, like *happen to* and *turn out*, or propositional attitudes, like *remember* and *forget* (see Karttunen 2016 for further critiques). The coincidental predicates are challenging to explain on a causal necessity/sufficiency story like the Baglini and Francez-Nadathur account because they do not seem to be associated with any particular necessary and sufficient conditions,[15] while the propositional attitude verb predicates are challenging to explain because the inferences that they trigger do not stay constant across syntactic contexts (see Section 2.1.1): (56) seems to trigger the inference that Jo has some (possibly weak) obligation or goal to make the bed – plausibly analogous to the effort inferences for *manage* and *fail* (van Leusen 2012) – whereas (57) triggers the inference that she actually did (Karttunen 1971a).

15. Thanks go to an anonymous reviewer for pointing this out.

(56) Jo did(n't) {remember, forget} to make the bed.

(57) Jo did(n't) {remember, forget} that she made the bed.

One explanation for the propositional attitude predicates in particular, suggested by White (2014), is that – unlike *manage* and *fail*, which plausibly trigger the necessity/sufficiency inference themselves – *remember* and *forget* do not trigger the apparently analogous obligation inference. Rather, he suggests, the subordinate clause itself contributes the relevant obligation inference and because *remember* and *forget* are factive, they trigger a veridicality inference about the content of the infinitival clause – similar to (58).

(58) John did(n't) {remember, forget} that he had to make the bed.

The main difference between (56) and (58) is that the veridicality inferences triggered by (56) are intuitively much stronger than those triggered by (58). He addresses this difference by positing that the stronger inferences of (56) arise in much the same way as actuality entailments in languages with overt grammatical aspect, relying on independent tests for semantic restructuring (Hacquard 2008; Grano 2012) that suggest different forms of semantic composition are active in (56) and (58).

3.2 Conversationalist approaches

In contrast to conventionalist accounts, which are generally happy to associate lexical items with fairly rich pragmatics effects, conversationalist accounts attempt to reduce the amount of lexical stipulation as much as possible – rather relying heavily on general conversational principles to derive inferences. Such an approach holds promise not only because it is potentially more formally elegant – requiring fewer stipulations – but also because it places less burden on a language learner who would otherwise need to learn such stipulations (see Dudley 2017 and references therein for discussion of how factive inferences are acquired).

In practice, nearly all of these accounts, must posit some amount of conventional lexical knowledge – some more than others. For instance, nearly all conversationalist approaches of semifactives start from the assumption that *know P* entails *P* – i.e. that *know* is veridical. But in general, the goal is to squeeze as much as possible out of the interaction of such knowledge with general communicative principles. In line with this, it behooves these approaches to find cases of lexically triggered inferences that appear to be not only defeasible, but also relatively *nondetachable* from an expression's content – i.e. independent of the particular linguistic expression of some content.

The inferences triggered by semifactives and aspectuals (but generally not true factives or implicatives) are common targets, since at least some of them have long been known to be defeasible (as discussed in Section 2). For instance, Simons (2001) argues for a conversationalist approach to some of the veridicality inferences associated

with semifactive and change-of-state constructions – in particular, those that project through negation – on the basis that, in addition to being defeasible, at least some of those inferences are like conversational implicatures (Grice 1989) in also being non-detachable. This is evidenced in (59) – where different paraphrases of *stop* also trigger the inference that Jane was laughing – and (60) – where different paraphrases of *realize* also trigger the inference that Harry was a fool.

(59) Jane didn't {quit, cease, discontinue} laughing (Simons' Example 14)

(60) Harry didn't {realize, come to know, become aware} that he was a fool. (Simons' Example 16)

Her explanation elaborates on an idea proposed by Stalnaker (1974) and has two components: (i) the use of a sentence that expresses some proposition P – e.g. that Jane stopped laughing – raises the question of whether or not a proposition P is true – e.g. either that Jane stopped laughing or that she didn't; and (ii) insofar as proposition P entails proposition Q (but not vice versa) – e.g. that Jane stopped laughing entails that Jane smoked – "[a] speaker who raises the question whether P indicates a belief that Q is true" (p. 13). Similar reasoning can be used to derive factive inferences under the assumption that *know p* implies *p* (but not vice versa). Thus, while this account requires that lexically triggered veridicality inferences are derived at least in part from conventional knowledge about lexical items, the relevant conventional knowledge is relatively minimal.

Simons (2001) notes that this proposal massively overgenerates veridicality inferences. For instance, for simple negated sentences involving a transitive verb, like (61), this proposal predicts that the inference that Jo ate something is triggered, contrary to fact: under her proposal, (61) should raise the question whether Jo ate the sandwich; but because Jo ate the sandwich entails that Jo ate something (but not vice versa), the inference that Jo ate something should be triggered.

(61) Jo didn't eat the sandwich.

In the same vein, for change-of-state constructions, like *stop*, this proposal predicts not only the attested inference that Jane smoked before the reference time but also the unattested inference that she didn't smoke after the reference time. To fix this latter case, she proposes to appeal to a conceptual distinction: in the particular case of change-of-state constructions, she posits that there is an important difference between pre-conditions for an event and its post-conditions.[16]

16. A similar fix would be necessary for factives like *know*: *x knows P* assymetrically entails *x believes P* and thus Simons' account predicts that one should infer *x believes P* from *x does not know P*, contrary to fact.

To address this overgeneration (among other issues), Abusch (2002, 2010) proposes an alternative approach: (i) lexical items are associated with alternative lexical items; (ii) in using a lexical item associated with such a set, a speaker signals that they are presupposing the disjunction of those alternatives. This approach can be exemplified using the factive *know that*, for which she posits *be unaware that* as an alternative. Abusch assumes that, as a matter of lexical knowledge one infers from *x knows P* that *P and x believes P* and from *x is unaware P* that *P and x does not believe P*. Thus, in using *x knows P* (or *x is unaware P* or *x does not know P* and so on), a speaker presupposes *(P and x believes P) or (P and x does not believe P)*, from which *P* (the veridicality inference) can be inferred. (A similar derivation can be given for *stop* under the assumption that it has *continue* as an alternative.) To capture variability in whether a lexical items triggers a particular inference, Abusch appeals to mechanisms drawn from Heim 1983b.

Simons' and Abusch's approaches are abstractly related in the sense that they both posit that lexically triggered veridicality inferences are derived by reasoning over alternatives; the main difference is in the source of those alternatives: a general principle for Simons and conventional lexical knowledge for Abusch. This allows Abusch to tune the alternative sets to fit the attested veridicality inferences better than a highly general approach like Simons'; but it does so at the cost of potentially being less explanatory, since she does not propose a general rule for determining the alternative set a lexical item is associated with. Much following work in the conversationalist vein can be seen as attempting to interpolate between these two approaches.

Some such approaches attempt to further constrain the alternatives lexical items can be associated with. For instance, Romoli (2011, 2014), following Chemla 2009, 2010, does this by associating lexical items like *know* and *stop* with alternative sets (like Abusch) in which they are the strongest element – i.e. wherein they asymmetrically entail all other alternatives (like Simons). For instance, he associates *know P* with the alternative *P* and *stop P* with the alternative *used to P* – like other accounts, assuming that *know P* entails *P* and that *stop P* entails *used to P* as a matter of convention.

Other approaches similarly focus on the notion of entailment for computing lexically triggered veridicality inferences but do not make the notion of lexically associated alternatives central – instead relying on a mix of lexical knowledge and informational structural notions (Abbott 2000, 2006; Simons et al. 2010; Beaver et al. 2017). For instance, Abrusán (2011, 2016) proposes a system that relies crucially on the notion of sentences and their uses (utterances) having a set of inferences that are part of their *main point* (or *at-issue*). For her, an utterance's main point is determined by *bottom-up influences*, such as conventional knowledge about the meaning of a construction, and *top-down influences* coming from the context; and anything that is not part of the main point of an utterance will project through entailment cancelling operators (see also Simons et al. 2010). The bottom-up influences determine the basic set of

inferences that must be part of the main point (cf. Wilson & Sperber 1979) – effectively, all and only the inferences that are about the event described by the matrix clause predicate (or more precisely the time span over which it occurred) – and the top-down influences – e.g. focus indicated by intonation (see Section 2.2.1) – may add to these inferences. Variability comes about as a produce of which inferences these top-down influences affect.

Simons et al. (2010, 2017) propose an alternative that attempts to reduce reliance on bottom-up influences, like the ones posited by Abrusán, moving back in the direction of (Simons 2001)'s original question-based proposal. They do this by deriving the question any particular use of a sentence raises (or is used to answer) via its focus alternatives (Rooth 1992). Specifically, they assume that all sentences have focus on at least one constituent (Selkirk 1984) and that the question raised by the use of a sentence is (roughly) whichever one would be derived by replacing the focused constituent with a WH word and, in prototypical cases, removing entailment cancelling operators. For instance, prototypically, the question raised by (62) is (62a).

(62) $[\text{Jo}]_{\text{F}}$ doesn't know that Bo left.
  a. Who knows Bo left?
  b. {X knows Bo left | X is animate and contextually relevant}

Under standard approaches to questions, constituent questions, such as (62a), correspond to a set of (possible, true, complete, etc.) answers (Hamblin 1973; Karttunen 1977; Groenendijk & Stokhof 1984) wherein the domain of the WH word is contextually restricted, such as those in (62b). They refer to this set as the *current question* and posit that "[p]rojection of the content of the complement of an attitude verb occurs if the Current Question for the utterance entails this content" (p. 192), where a question entails some content if the disjunction of its answers entails it.[17] Under the assumption that *X know P* entails *P* for any *X* this account then derives the lexically triggered veridicality inference of (62).

In contrast, the inference is not necessarily triggered by the use of (63).

(63) Jo doesn't $[\text{know}]_{\text{F}}$ that Bo left.
  a. How is Jo related to the proposition that Bo left?
  b. {Jo Vs Bo left | V is a contextually relevant relation between entities and propositions}

For instance, if the contextually relevant relations turn out to include believing, then at least one alternative will not entail that Bo left, and therefore no inference about Bo's

17. Note the similarity to Abusch 2002, 2010 and dissimilarity from Simons 2001, which crucially requires that only the positive alternative in the polar question raised by the use of the sentence is relevant.

actually leaving will be triggered. But if the context only supports alternative relations that are themselves veridical – e.g. discovering, realizing, etc. – then the inference is triggered by the use of (63).

Simons et al.'s explanation gets a bit trickier for sentences like (64), since the proposition that Bo left does not show up in all alternatives, and therefore, not all alternatives entail that Bo left.

(64) Jo doesn't know [that Bo left]$_F$.
  a. What does Jo know?
  b. {Jo knows P | P is a contextually relevant proposition}

To remedy this, they appeal to constraints on the set of contextually relevant propositions determined by the selection restrictions of the predicate – specifically, that to know something, that thing must be true.

A main contribution of Simons et al.'s theory is that it integrates lexically triggered veridicality inferences into a broader conversationalist theory of discourse in much the same way as Heim 1992 and Van der Sandt 1992 within conventionalist approaches. To do this integration, they rely on Roberts' (1996) notion of a Question Under Discussion (QUD; see also Rooth 1992; D. Beaver & Clark 2008) for defining their notion of what is (not) at-issue. The basic idea behind their QUD-based approaches is that (a certain subset of coherent) discourses move forward by attempting to answer a(n explicitly or implicitly determined) *discourse question*. To answer this discourse question, *subinquiries* can be raised, subject to *relevance constraints* on whether the subinquiry will help answer the discourse question; and if they satisfy these constraints, they become the current question. This current question may in turn act as a discourse question for another subinquiry; or it may be answered, in which case the discourse question it was a subinquiry of becomes the current question again. Crucially, to be licitly used in answering a question, a sentence must have a focus structure that is compatible (or *congruent*) with the current question; or if not compatible with the current question, the focus structure must be associated with a question that might reasonably become the current question because of its relevance to answering the discourse question. Following the hypothesis laid out above, context projects insofar as a current question that gets introduced this way entails that content.

This proposal is reasonably viewed as a recasting of standard conventionalist accounts that rely on (global) accommodation to capture factive inferences into a conversationalist framework. One potential difference is that Simons et al. argue that their system can actually handle further cases that seemingly do not rely on lexical knowledge at all. For instance, *believe* is a prime case of a nonveridical predicate, but in certain contexts, it can appear factive (or at least implicative). Consider (65) and (66) in a context where Phil is looking for the car, which Amy has parked in the parking garage, contrary to her normal tendency, and which Polly does not know.

(65) Simons et al.'s Example 34
Polly: Why is it taking Phil so long to get here?
Amy: He didn't know that the car's parked in the parking garage.

(66) Simons et al.'s Example 36
Polly: Why is it taking Phil so long to get here?
Amy: He didn't believe that the car's parked in the parking garage.

Simons et al. argue that the inference that the car is parked in the parking garage is derived the same way in both cases. Specifically, they hypothesize that "[p]rojection of the content of the complement of an attitude verb occurs if the best explanation for relevance of the [current question] to the [discourse question] requires attribution of acceptance of that content to the speaker" (p. 192), and thus, the inference triggered by Polly's utterances in both (65) and (66) are derived by general considerations of relevance.

4. Conclusion

The last 50+ years of research on lexically triggered veridicality inferences have provided a wealth of empirical observations, formal tools, and philosophical perspectives on the use of those tools. Nonetheless, there is still much work to be done in understanding the nature and source of these inferences: while different lexically triggered veridicality inferences seem likely to arise in very different ways (Karttunen 2016), there currently exists no single theory that predicts all the extant inference patterns discussed in Section 2 of this paper under a cohesive system of semantic and pragmatic mechanisms (cf. Giannakidou & Mari to appear and references therein). Developing such a cohesive system requires further disentangling the role of lexical and compositional knowledge from that of conversational principles. Such a disentanglement itself requires integrating insights from the vast literature on the semantics of propositional attitude reports and clause-embedding (see Grano in prep for a review) with the equally vast literature on formal pragmatics. But the time is right for such an integration: not only do researchers have access to massive corpora annotated for veridicality (Saurí & Pustejovsky 2009; 2012; de Marneffe, Manning & Potts 2012; Lee et al. 2015; White et al. 2016; Stanovsky et al. 2017; Rudinger, White & Van Durme 2018) that can be used to evaluate theoretical coverage, they also have at their fingertips sophisticated, explicit computational models of pragmatic reasoning (Frank & Goodman 2012; Goodman & Stuhlmüller 2013) that have shown initial promise in capturing lexically triggered veridicality inferences (Qing, Goodman & Lassiter 2016).

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Orthography and cognition

Dominiek Sandra
University of Antwerp

This contribution approaches orthography from two perspectives: a descriptive one and a cognitive one. From a descriptive point of view a writing system is a visual representation of a language, either by directly representing word meanings (logographic system) or by indirectly doing so through the representation of a word's pronunciation (syllabic and alphabetic systems). The paper focuses on alphabetic orthographies. Such an orthography by definition encodes the phonemes of a word and may also encode a word's morphological structure. The units that are encoded in an alphabetic orthography have important cognitive consequences. Even though the discovery of phonemes requires cognitive effort, teaching children to become aware of them is necessary in order to turn them into successful readers and spellers. Dyslexic individuals have notorious problems with phonemic awareness and other phonological skills. The discovery of morphemes comes more easily, even though there are circumstances when even highly experienced spellers are unable to spell some suffixes correctly when writing under time-pressure. The representation of morphemes in the orthography also has implications for the structure of the mental lexicon (morphological families) and for the way in which morphologically complex words are accessed (a process of blind morphological decomposition.

1. Introduction: Language and communication

In general, the purpose of communication is to transmit information.[1] The least complex form of communication probably involves the transmission of emotions. For instance, a cry of pain or fear unambiguously transmits, without words, a strong emotion. Animals as well as human beings are able to transmit such low-level information.

1. This definition may seem to be at odds with the perspective on language in the field of pragmatics, where the use of specific language resources is as important as informational data structures themselves. For instance, Verschueren (1999) writes that "pragmatics can be defined as the study of language use […] the study of linguistic phenomena from the point of view of their usage properties and processes." (p. 1). Note that the final paragraph of this section will also emphasize this important aspect of communication.

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The most complex form of information transmission involves the transfer of ideas. This is the province of our own species. Most often, ideas are transmitted in the form of language (the focus of this contribution) but it can also be achieved non-verbally, as, for instance, by means of paintings and sculptures, or, at a less elevated level, by the use of simple signs like pictograms (e.g., in buildings, at the roadside) or smileys.

The transmission of ideas generally involves tacit conventions for doing so. If such conventions were not observed by all members using a communication system, the very purpose of communication would be lost. Hence, a communication system has no 'survival value' if those using it would not observe tacit conventions for converting their messages in a form that can be clearly understood by their fellow community members. As animals and human beings are unable to directly perceive what is going on in another brain, the transmission of ideas (henceforth: meanings) requires the sender to encode meanings in a form that is perceptible by one of the senses. Hence, any communication system is an encoding device: a system for (literally) giving form to meanings by following the encoding conventions. Meanings from fellow members of the same species can only be delivered by means of a physical carrier.

This definition is not only true of language – it holds across all communication systems. Even a small animal, the honey bee, communicates with the other bees with a system that conforms to this definition. Karl von Frisch (von Frisch & Landauer 1956) discovered that honey bees that have discovered a source of nectar fly back to the hive to perform a highly structured 'dance' for their fellow bees. The properties of this dance (speed for one type of dance, the orientation of the diagonal through an eight-shaped dancing trajectory for another dance) are highly reliable indices for the forager bees to derive the coordinates of the flowers, fly out and detect the source of nectar. Von Frisch received the 1973 Nobel prize in physiology and medicine for this startling discovery about the communicative skills of these creatures. Obviously, no serious scientist believes that honey bees consciously reflect on how to encode the location of nectar in the form of a dance. Their central nervous system is far too simple for such a high-level performance. Moreover, this communication purpose serves only a single purpose, which is directly linked to the survival of the individual and the species: the continual provision of food. Nonetheless, the absence of consciousness in communication does not make it less purposeful. The dance of the honey bee meets the requirement of a communication system, where a message is transmitted to another member of the species by encoding it in a form that is perceptible by members of the same species.

Obviously, the encoding principles underpinning human languages are many factors of magnitude more complex than those of the humble honey bee. Many introductory handbooks to linguistics describe how languages accomplish the task of mapping meaning to form (Akmajian, Farmer, Bickmore, Demers & Harnish 2017; McGregor 2015; Radford Atkinson, Britain, Clahsen & Spencer 2009). In short, with the risk

of oversimplifying the complexity of the phenomenon, a human language conveys meaning by virtue of (a) conventionalized associations between sound patterns and meanings and (b) conventionalized ways of ordering these sound patterns relative to each other. The links implied by (a) are what we usually call words, more technically, the lexicon. The ordering implied by (b) are grammatical rules, more technically, syntax. Hence, speakers of any human language encode meaning in sounds and syntactic structures. The pillars of our languages are sounds, syntax, and meaning (see Sandra forthcoming).

Note that a definition of clear communication that emphasizes the importance of observing tacit conventions for the conversion of meaning into physical form does not exclude situations where this is not the case. Senders may sometimes purposefully avoid clarity and lack of ambiguity. As a matter of fact, ambiguity can even be the defining feature of some types of communication. In some contexts, this even enhances the power of the message. For instance, people often attribute a different meaning to the same work of art, which some people consider a basic feature of true art (e.g., a Picasso painting, a picture). However, more harmful situations arise when vagueness or ambiguity turn up in communicative situations where the receiver interprets the message in a different way than intended by the sender. This becomes problematic when vagueness is used (e.g., by some politicians) to purposefully cause different interpretations in different (groups of) receivers, thus creating disagreements and a possible ensuing polarization between groups of people. Even though this misuse of language is interesting in itself, and the study of its mechanics important to warn non-suspecting people that they are manipulated, our focus is on successful communication through language, more particularly, written language. How do we succeed in transmitting meanings through written forms? What are the cognitive demands that writing systems create for those who want to learn to write and for those who want to be able to read these written messages? Are writing systems always optimally fit to the cognitive architecture of writers (and readers)?

2. Different writing systems

As spoken language is a device for mapping meanings onto spoken forms,[2] written language, which is a visual representation of spoken language, must essentially accomplish the same task. Logic dictates that there are two possible ways of creating

2. Sign languages are another way of accomplishing the same purpose. The only difference with spoken languages is that sign languages use body gestures as the physical carriers of meaning rather than sounds (making the receiver rely on vision rather than hearing). Sign languages are equally rich in their expressive power as spoken languages, equally complex from a linguistic

visual symbols for expressing linguistic meaning through writing. On the one hand, these visual symbols could be directly associated to the meanings they have to express (word meanings, more accurately, morpheme meanings). The nature of such a writing system would be directly comparable to the relationship between spoken symbols and their meanings. Both would involve accidental, i.e., arbitrary, links between a symbol and a meaning, which would become conventionalized signs, due to the repeated and shared usage by all members in a speech community. Being two sets of arbitrary symbols, the written ones would bear no relationship to the spoken ones. On the other hand, the written symbols could be indirectly related to the meanings they express, more particularly, by encoding the sound symbols that already exist in the spoken language.

From the perspective of economy, the indirect way seems the obvious option. It seems more laborious to invent a written symbol for each word (even when reusing symbols in morphologically related words) than to invent a symbol for a much more limited number of sounds. To anticipate the discussion on different types of orthographies, an alphabetic writing system involves a limited set of written symbols for the speech sounds. Even though the inventory of speech sounds that are functional in a language, i.e., phonemes, varies greatly between languages (between as few as 11 and as many as 141), many languages construct their words on the basis of a rather limited set of 20 to 40 phonemes (Crystal 2010). English with its 44 phonemes is situated at the higher end of this range. From the perspective of representational economy, it is preferable to adopt a set of some 40 written symbols (i.e., 26 letters and a small number of fixed letter combinations corresponding to one phoneme, e.g., *th, ph, sh*), each of which recurs over and over again in many words, than to generate a set of novel symbols, one for each morpheme in the spoken language. Incidentally, the one-to-one correspondence between written symbols (so-called graphemes) and phonemes suggested here is an ideal that is seldom reached, as the same sound is often spelled differently in different words (e.g., the vowel sound in *fear* and *deer*) or the same grapheme often has different pronunciations in different words (e.g., *ea* in *bear, beard, heard* or *i* in *fit, fir, fire*). Despite this complication, a set of mappings between graphemes and phonemes remains the most economical solution to the challenge of inventing a writing system.

The fact that not all languages make use of an alphabetic writing system underscores the fallacy of this economical perspective and the problem with a belief that the best analytical situation corresponds to the way people actually choose to solve a problem. Contrary to what is suggested by the 'common sense' reasoning above,

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perspective, mobilize similar brain structures (e.g., Broca's area, Emmorey, Mehta & Grabowski 2007) and have been claimed to be a model for the evolution of spoken language (Sandler 2018).

the writing systems that actually exist in the world instantiate the two logically possible ways of representing speech: a direct representation of morpheme meanings and the indirect representation of these meanings by the representation of spoken words (Goswami & Bryant 1990). The former type is known as the logographic system. Chinese is the prototypical example, where written symbols can be pictographic and represent abstract concepts. Even so, many compound symbols also contain a symbol that provides a pronunciation hint (even though this is not comparable to a direct sound representation). Historically speaking, logographic writing systems are the oldest ones. On second thought this is not surprising: it seems quite natural to create symbols that make a direct reference to the meaning one wants to express. After all, the representation of meaning is the major purpose of spoken language as well. Why would the tendency to map symbols directly onto meaning be so different when it comes to writing? Note that many of us tend to forget that logographic symbols are abundantly used in countries where there is no logographic writing system. For instance, traffic signs, business logos, pictograms in public places. This tendency to develop logographic signs is even present in our written texts: when using shorthand like the ampersand (&), the at-sign (@), the number sign (#), and the decimal numbers (0–9).

The writing system that indirectly represents meaning, i.e., by representing the spoken word, comes in two flavors, depending on the phonological unit that is visually represented. A syllabic system, as the name implies, uses a single sign for each syllable. Japanese is the prototypical example. This language ideally lends itself to this type of writing system, as it has a very regular set of simple syllables: consonant-vowel combinations or single vowels. The entire set of syllables making up the spoken words in such a language can almost be generated by using the rows and columns of a matrix for the entries of the consonants and the vowels, respectively. The written symbols representing this set are known as a syllabary.

The alphabetic writing system is the second type that encodes the pronunciation of words. Here the basic units for encoding are the individual phonemes, i.e., the constituent sounds making up spoken words. The distinction between phonemes and sounds can feel somewhat awkward in the context of writing systems, as our intuition tells us that we connect written symbols to the sounds in words. Even though this intuition is misleading, a way out of this terminological issue is to refer to functional sounds instead. This is actually the definition of a phoneme: a sound that is functional in the language because it can cause a change in meaning, i.e., a different word, when replacing one sound in a word (e.g., the sound [r] is a phoneme /r/ in English because changing the first sound in *mat* results in a different word – and vice versa, making /m/ a phoneme as well). Many of the world's languages have a writing system that is based on the alphabetic principle: English, French, German, Dutch, Italian, Spanish, and many more.

Despite its popularity, the system emerged quite late in the capacity of our species to write. Even though common sense leads one to believe that this is the most economical solution to the task at hand and apparently the most evident as well ("just segment the word into its constituent sounds and link each sound to a letter"), this is the type of judgment that is made with the benefit of hindsight. Because we are familiar with this writing system and are stunned by the idea that Chinese university students still have to memorize novel symbols in their logographic system, it is hard to imagine that it could have been different. More importantly, our experience has clouded the fact that it is actually very hard to segment a spoken word into its constituent sounds – and, hence, that it is hard to come up with the idea of devising written symbols for constituent sounds that one can hardly identify in spoken words. It is crucial here to realize that an act of identification involves a conscious process, in contrast to recognition. For instance, a two-year old baby can recognize the difference between the words *cat* and *mat*, and act accordingly, but is unable to become consciously aware of the two sounds that cause the words to differ from each other. In order to spell the word *mat* (or a word that one has never encountered, like *vap*, i.e., a way to exclude the contribution of memory retrieval), one must be able to consciously tear the pronunciation of the word apart into its constituent sounds. Think about it. It is indeed virtually impossible to imagine that you cannot dissect a word like *mat* into its sounds, but it is equally impossible to imagine performing the same task in a language whose spoken words are phonologically far removed from the ones in your native language (e.g., Chinese for a native speaker of English). This experience catapults us back to the situation in which the preliterate child finds itself: we experience a spoken word as a seamless sound string, without any pieces of sound to be found inside (at least not the small pieces that are referred to by phonemes, see below). The apparent ease with which we can chop apart words like *mat, treat* and *scream* is the result of being over-trained in this kind of 'auditory analysis', because we have learnt to spell a long time ago. It is just as much an illusion that the phonemes are clearly 'out there' for everyone to hear as it is an illusion that everyone can see the same object in a picture if it is initially hard to discern. A well-known example is the image of a Dalmatian dog that many people fail to see in a picture of what at first sight seems a random distribution of many dark patches on a white background; but once you have seen the dog, there is no going back to being able to look at the picture without seeing the dog.

3. The encoding principles of an alphabetic orthography

As mentioned in Section 2, the basic encoding unit of any alphabetic writing system is the phoneme. However, even when considering only a small sample of alphabetic writing systems, one notices that this is only the backbone of this writing system.

Depending on the specific language one focuses on, two factors can complicate this basic picture to a lesser or greater degree: orthographic depth and the encoding of morphological structure.

Orthographic depth refers to the consistency in the way graphemes represent phonemes. As mentioned in Section 2, the alphabetic principle of a writing system generally does not imply that the same phoneme is always represented by the same grapheme and that the same grapheme always has the same pronunciation. Words like *tear* and *beer* and *tear* and *bear* illustrate both types of inconsistency. A writing system in which there are not many such inconsistencies is said to have a shallow orthography, whereas one in which there are plenty of these inconsistencies are known as deep orthographies. The Italian writing system is a prototypical example of a shallow orthography. In contrast, English has a notoriously deep orthography. Needless to say, when the nature of the writing system is based on the idea that the spoken word should be recoverable from the written word (and vice versa), a deep orthography will predictively interfere with the tasks of learning to cope with grapheme-to-phoneme mapping ('sounding out words') and phoneme-to-grapheme mapping (spelling). This issue will be taken up in Section 4, where a distinction will also be made between beginning readers and spellers on the one hand and fluent readers and spellers on the other hand.

The encoding of morphological structure pertains to a second source of linguistic information in the word that is encoded by some alphabetic orthographies but not others. The English orthography encodes the phonemes in a spoken word but also its morphological structure. For instance, the final letter pair of the past tense forms *dreamed, kissed*, and *lifted* is pronounced differently in the three words, as [d], [t] and [Id], respectively. If the spelling of an English word were always the result of representing each sound by its canonical spelling, these word forms should be spelled as *dreamd, kist*, and *liftid.* However, this is not the way the English spelling works. The differences in sound are ignored in favor of morphology. More particularly, the fact that there is constancy at the level of the forms' morphological structure – all forms are regular past tense forms and end in the past tense suffix – overrules the basic principle of sound-based spelling. According to this morphological principle the same morpheme maintains its spelling across all words in which it occurs. The English spelling is morphologically rather poor, but the orthographies of, for instance, French and Dutch, more often represent the morphological structure of word forms. Hence, they serve as good examples of the precedence of the morphological principle over the application of sound-based spelling.

In both French and Dutch the morphological principle consists of two subparts: (a) a principle of form consistency and (b) a principle of analogy. The former applies to free morphemes and states that the same morpheme has a constant spelling, despite differences in pronunciation. The latter applies to suffixes and states that the same suffix is always spelled identically, even if it is pronounced differently. As an illustration

of the principle of form consistency, consider the fact that the final letter in the French word *gallop* ('galop') is not pronounced. Still, it is spelled because the sound [p] can be heard in the infinitive *galloper* ('to galop'). The spelling committee that designed the spelling rules for French must have reasoned that this indicates that there 'really' is a /p/ phoneme in the word. According to the principle of form consistency, this implies that the spelling of this phoneme of the stem morpheme takes precedence over the principle of spelling the sounds. The same reasoning was clearly followed by the designers of the Dutch spelling rules. A final letter <d> is invariably pronounced as [t], for instance, in words like *hond* ('dog'), *goed* ('good') and *word* ('become'), a phonological phenomenon that is known as final devoicing. Despite this devoicing, all words are spelled with a final <d> because the sound [d] is heard in the morphologically related forms *honden, goede*, and *worden.* Since these morphologically complex forms reveal the presence of the phoneme /d/ in their stem morpheme, the canonical spelling of this phoneme must also be used when the stem is used without a suffix and the [t]-sound is heard.

The second part of the morphological principle, the principle of analogy, can also be abundantly demonstrated by the spelling of word forms in French and Dutch. The spelling of French verb forms is notoriously famous for the application of this principle. For instance, the past participles *passé and passée* have the same meaning and the same pronunciation in the speech of many speakers of French. Still, two different spellings are used. In this case, the spelling cannot be determined on the basis of a stem-related form, which can betray the spelling of the silent letter (as in the *gallop* example). The spelling of the inaudible <e> can be analogically derived from other word forms with the same grammatical function. In a construction with the French verb *être* ('to be'), the predicate concords with the gender property of the grammatical subject (also with its number). A feminine gender requires that an <e> be added to the predicate (past participle, adjective). This is clearly audible in an adjectival form like *contente* ('happy', feminine of *content*). Analogical reasoning implies that a grammatical subject with a feminine gender requires the addition of the phoneme /e/ (hence, the letter <e>) to the predicate.

The same principle accounts for the spelling of regular verb forms in Dutch. This is an especially notorious aspect of the orthography of this language because it is the source of persistent spelling problems, even in professional writers (see Section 5). Consider the two Dutch regular verb forms in the present tense *vind* ('find') and *vindt* ('finds'), which are the 1st and 3rd person singular forms, respectively. Both forms are pronounced identically (verb homophones), ending in the sound [t], because the final <d> in *vind* is pronounced as [t] as the result of final devoicing. The spelling of the stem-final <d> can be explained in terms of the principle of form consistency: the infinitive *vinden* reveals the presence of the phoneme /e/, which indicates that the sound [t] in *vind* should be spelled as <d>. However, this principle cannot account

for the spelling of the <t> in the form *vindt*. Here, the principle of analogy comes in: it appears that verb forms with the same grammatical function have an audible [t]-sound, which means that a 3rd person singular form in the present tense contains a suffix that is spelled as <t>. Examples of forms with an audible [t] are *werkt* ('works'), *reist* ('travels'), *leeft* ('lives'). By analogy this suffix must also be spelled in the 3rd person singular of the present tense of *vinden*, i.e., *vindt*, even though it cannot be heard – its sound is 'absorbed' by the devoiced [d]-sound of the stem, which already sounds as [t]. This example shows that the spelling of verb homophones like *vindt* highlights the dual aspect of the morphological principle in Dutch: the <d> is determined by the principle of form consistency, the <t> by the principle of analogy.

4. Alphabetic writing systems and our cognitive system

Section 3 mentioned two important encoding principles in an alphabetic orthography: the encoding of phonemes and the encoding of morphemes. Such a descriptive approach to writing systems and orthographies is one way of looking at this study object. Another perspective is to approach orthography from the perspective that spelling conventions were designed for the usage of written language. Hence, the question arises to what extent this design fits the way in which the human cognitive system operates. More particularly, are the encoding principles that are implemented in an alphabetic orthography easy to learn? This issue will be addressed in the present section and in Section 5. This section deals with the question how well our cognitive system is able to cope with an orthography that encodes the phonemes of words. Section 5 considers the same question but relates it to the encoding of the morphological structure of words. Both sections will highlight the type of mental representations that must be developed in order to deal with that particular encoding principle and discuss the problems that can emerge as the result of this.

4.1 The crucial importance of phonemic awareness

Many studies have made it clear that the success in learning to read and spell in an alphabetic orthography crucially depends on one's ability to consciously identify the phonemes in spoken words. A first important step was the realization, which was the result of the seminal work by Isabelle Liberman and her coworkers at Haskins laboratories (e.g., Liberman, Shankweiler, Fisher & Carter 1974), that phonemes are not discrete entities that can be isolated in the acoustic signal but should be considered as mental abstractions with no objective existence outside the mind of a literate person. This insight generated numerous studies on the ability of illiterate people (young children but also illiterate adults) to become aware of the phonemes in a spoken word, by

testing whether they can manipulate these units. Simple tasks were designed to probe this ability, for instance, a task in which a spoken word had to be segmented into its constituent phonemes, or a task in which one had to repeat a word stimulus with the omission of a previously specified phoneme (for a review see Adams 1990; Bryant & Bradley 1985; Goswami & Bradley 1990). For instance, Liberman et al. used a tapping task to probe which phonological units were consciously accessible to preliterate children. The children were given a wooden dowel stick and were asked to tap with it for each phonological unit. Whereas preliterate children are able to tap the number of syllables in a word (e.g., cro.co.dile), they fail dismally when they are asked to thus count the number of sounds (phonemes) in a short one-syllable word like *mat.* At the end of a school year, none of the 4-year-olds could do this, only 17% of the 5-year-olds was successful, but 70% of the 6-year-olds (who had learnt to read) were able to perform this task. This indicated that our awareness of the phonemes in a word does not come easily and that there is an intimate connection between such phoneme awareness and early literacy.

Many subsequent research findings made it clear that the most difficult task facing someone who learns to read and write in an alphabetic orthography is not the necessity to learn unfamiliar visual symbols. It is indeed the requirement to identify the sounds in spoken words. As mentioned in Section 3, this may come as a surprise because it goes against our intuition that a words' speech sounds are readily accessible. However, it cannot be sufficiently emphasized that, from the vantage position of highly experienced readers and writers, our intuition is the worst compass for assessing the difficulty of learning to find a word's constituent sounds. Being over-trained in this skill, we have become unable to have the same perception of spoken words as preliterate children (or adults). There is a second reason why our intuition is so misleading: in addition to being highly skilled in focusing on the details of spoken words, we have access to a second information source about a word's constituent sounds: the word's spelling. Experienced writers can quickly (even unconsciously) mentally generate the spelling of a regular word (even a non-word, i.e., a word that they have never heard before) and use this orthographic information to identify the word's sounds. For instance, when we know that the word *dog* counts three letters and the non-word *smip* four letters, it makes sense to assume that their spoken equivalents comprise three and four speech sounds, respectively. This tight link between phonemic awareness and orthographic knowledge can be demonstrated with a simple task, which requires one to determine as quickly as possible the number of sounds in a spoken word. Experienced readers are faster and/or more accurate in doing so for words like *rich* than for words like *pitch*, even though they have the same number of sounds (Seidenberg & Tanenhaus 1979). This is a very reliable effect, which does not require ideal laboratory conditions; it can easily be shown in an auditorium with undergraduates. Interestingly, this orthographic interference effect in a phonological

task quickly emerges in literacy development: it was reported in a group of fourth graders (Ehri & Wilce 1980) and it was found that even first graders count more sounds in a word that has more letters than a control word but the same number of sounds (Barron 1994; Tunmer & Nesdale 1982).

This interference effect leads to an important insight into the nature of phonemic awareness, the ability to consciously identify the speech sounds in spoken words. This particular skill, which is the road to literacy (e.g., Adams 1990, for a comprehensive review), makes it possible for readers to generate a sequence of letters from a spoken word. In turn, this ability has a feedback effect on their ability to identify a word's constituent sounds, as the letters can be used as pointers to the word's constituent sounds. This interactive nature of the connection between our knowledge about phonemes and graphemes, with each skill feeding off the other, has been emphasized by Morais (e.g., Morais & Mousty 1992). In a seminal study Morais, Cary, Elegria and Bertelson (1979) showed that Portuguese illiterates were unable to consciously manipulate the phonemes in a word: they could not pronounce the word the experimenter pronounced while removing the first consonant or adding one. Morais (and other researchers) have strongly argued for the position that children's awareness of phonemes not only arises as the result of a spontaneous phonological development but also because they are taught to read in an orthography based on the alphabetic principle. Learning to read by focusing on the connections between graphemes and phonemes changes our perception of a spoken word. It is no longer a continuous acoustic signal but a signal that is perceived as a sequence of discrete segments (phonemes).

The numerous studies on the relationship between phonemic awareness and early literacy led to the firm conclusion that this awareness is crucially involved in learning to read and spell. So much so that it is the most important predictor of early reading success. Lyon (1995) concluded that "the best early predictor of reading difficulty in kindergarten or first grade is the inability to segment words and syllables into constituent sound units (phonemic awareness)". Children who experience problems with the identification of phonemes in spoken words run the risk of becoming poor readers (see Adams 1990, for a thorough review of this literature).

4.2 The importance of effective literacy instruction: The success of the phonics method

The same insight emanated from studies on the effectiveness of different methods for learning to read. A multitude of studies on this topic were published around the same period. The bottom-line of this vast literature converges with the idea that a well-developed phonemic awareness is essential for becoming a good reader (see Adams 1990, for a comprehensive review). It may sound strange to call this an 'insight'. Does the rationale behind an orthography based on the alphabetic principle not make it

evident that learning letter-sound correspondences is the best way to cope with this type of representational system?

Not necessarily. At this point, the consistency of the connections between the graphemes and the phonemes in an alphabetic orthography may be important. More particularly, the answer to the question may be related to the distinction between a deep and shallow orthography (see Section 3). The experimental evidence certainly shows that the phonological consistency of the orthography determines the speed with which children learn to read. This learning process proceeds faster when the language has a shallow orthography, like German, than when it has a deep one, like English. Frith, Wimmer and Landerl (1998) showed that the ability to read nonwords develops faster in German children than in their English peers (see also Landerl & Wimmer 2008; Wimmer & Goswami 1994). The use of nonwords is important because these guarantee that the pronunciation cannot be retrieved from the mental lexicon but must be assembled by the application of grapheme-phoneme connections. Aro and Wimmer (2003) studied children's nonword reading in Grades 1–4 and found that English children performed much worse than children learning to read in six more shallow orthographies (German, Dutch, Swedish, French, Spanish, and Finnish). They concluded "that with the exception of English, pseudowords in the remaining orthographies were read with a high level of accuracy (approaching 90%) by the end of Grade 1."

Do these findings lead to the conclusion that English children should learn to read in a fundamentally different way, i.e., that it makes no sense to teach them the grapheme-phoneme correspondences in their orthography? Indeed, how useful can this be if the link between graphemes and phonemes (reading) and phonemes to graphemes (spelling) is so unreliable? When considered from that perspective, the answer that emerged from the research may come as a surprise. The entire body of research on this issue has shown that it is as crucially important for early literacy instruction in English to focus on phonemes and graphemes as in a language with a shallow orthography (see Adams 1990, for an in-depth and convincing review of this literature). This brings us to what has become called the 'reading wars' in the United States of America.

Only a few decades ago, these 'reading wars' raged in educational, pedagogical, and academic circles in the United States of America. The fight was about the most effective method for teaching children to read. At the end of the sixties of the previous century, a widely held view proposed that children should learn to read by memorizing written words as whole units. This approach to literacy education is known as the whole-word method or, more generally, the whole language approach. Kenneth Goodman (1967) and Frank Smith (1971) are the best-known defenders of this view on literacy instruction. According to them and their followers, a focus on letters and sounds is a waste of classroom time. For one thing, the many inconsistencies in the connections between letters and sounds (both from letters to sounds and from sounds

to letters) often result in reading and spelling errors. For instance, beginning readers will read a word like *bear* as *beer* and mispronounce the vowel in *find* as the vowel in *fin*. These errors will constitute a constant source of frustration, which may result in demotivation. In contrast, learning to recognize a word as a whole unit would yield direct access to its pronunciation, and, hence, make for a more error-free process of word recognition. Additionally, whole-word educationalists argued that a strong educational concern with letters and sounds is fundamentally misguided because such a strong focus on a word's microscopic details diverts the child's attention from the essence of reading, and language in general: meaning. The opponents of the whole-word reading method fiercely defended a phonics approach to the teaching of reading. The name says what it means: if one wants to transform preliterate children into good readers, it is essential to focus on a word's phonological entities, more particularly, phonemes. As mentioned above, their argument was that there is no denying that the English orthography is founded on the alphabetic principle. Hence, purposefully denying children access to the very foundation of this representational system for words amounts to a refusal to tell them which key they need to crack the code of the system they must learn to use – leaving this task to the children themselves.

The arguments back and forth resulted in vigorous attacks on the opponents' method. More than ten years before Goodman and Smith contributed their share to the reading wars, Rudolf Flesch (1955) published a book with the following fully explicit title: *Why Johnny can't read – and what you can do about it.* The book heavily attacks the then popular whole-word method in educational programs for literacy instruction across the United States. Flesch observes that many American children are poor readers and argues that the children are not to blame for this but those who are responsible for having chosen a wrong reading method. The first chapter of his book is a wonderfully written letter to the mother of an imaginary school boy, Johnny, who has been sent back to sixth grade because he was such a poor reader that he could not keep up with his school work. There is no better way to give someone the flavor of the sharp writing style of this letter, and indeed the entire book and the author's eloquent formulations, than by giving a few citations.

> What I found is absolutely fantastic. The teaching of reading – all over the United States, in all the schools, in all the textbooks – is totally wrong and flies in the face of all logic and common sense. Johnny couldn't read until half a year ago for the simple reason that nobody ever showed him how. Johnny's only problem was that he was unfortunately exposed to an ordinary American school.
> […]
> Since the dawn of time people have learned mechanical means of communication in this way – smoke signals and drums in the jungle and flag language and I don't know what all. You take up one item after another, learn what it stands for, learn how to reproduce it and how to recognize it, and there you are.

> […]
> Except, as I said before, twentieth-century Americans – and other nations in so far as they have followed our example. And what do we use instead? Why, the only other possible system of course – the system that was in use before the invention of the alphabet in 1500 b.c. We have decided to forget that we write with letters and learn to read English as if it were Chinese. One word after another after another after another. If we want to read materials with a vocabulary of 10,000 words, then we have to memorize 10,000 words; if we want to go to the 20,000 word range, we have to learn, one by one, 20,000 words; and so on. We have thrown 3,500 years of civilization out the window and have gone back to the Age of Hammurabi.
> […]
> Because, you see, if a child isn't taught the sounds of the letters, then he has absolutely nothing to go by when he tries to read a word. All he can do is guess.

The message of the book is clear: like many American children, Johnny has reading problems because his teachers used the wrong instruction method, and he can become a successful reader if he is taught what needs to be taught in an alphabetic orthography: learn the correspondences between letters and sounds. Unfortunately, despite reaching the status of a bestseller the book did not cause fundamental changes in literacy education. Recall that the proponents of the whole-word method published their books ten years after Flesch's book, i.e., the view that the whole-word method is superior to the phonics approach survived even this fierce attack and was very much alive, both in thinking about learning to read and in designing the program for early literacy instruction. Flesch (1981) published a sequel to his book – *Why Johnny still can't read* – in which he writes a counter-attack on all arguments that are put forth by those confessing their belief in the whole-word philosophy.

It seldom occurs that theoretical arguments suffice to convince someone who believes another truth. No matter how much sense the arguments may make, they will fail to make sense to those who truly believe in the alternative method. A more successful method for making a convincing case is by collecting observations with methodological precision, which is the nature of the scientific method. This method had worked in many fields of science, and it has also been successful in convincing many people that the phonics method is indeed a more effective way for teaching children to read. Adams (1990) summarizes studies that compared the reading levels of children who learnt to read in schools adopting the phonics method and children attending schools making use of the whole-word method. These studies revealed that the phonics method results in higher reading levels. In the 1990s the National Reading Panel convened by the U.S. Congress performed meta-analyses to find out whether phonics instruction was more beneficial than no-phonics instruction (or non-systematic instruction). These analyses indicated that phonics indeed provides a better guarantee for later reading success (Ehri, Nunes, Willows, Schuster, Yaghoub-Zadeh & Shanahan

2001; see also Torgerson, Brooks & Hall 2006). A recent study by Taylor, Davis and Rastle (2017) confirmed these findings. The researchers taught adults to read words in a novel orthography, consisting of unfamiliar forms. Participants in one group had to learn to decode the words by using a phonics method and were given their meaning as well, whereas another group had to focus on the words' meanings by memorizing them as whole units. In subsequent reading tests, the phonics group outperformed the whole-word group, both in reading aloud and in comprehension. Moreover, MRI scans suggested that the brains of the whole-word group had to work harder to perform the tasks. As this evidence is based on an invented orthography (thus mimicking children's process of learning to read in adults), it is considered strong evidence in support of earlier claims that the phonics method is the instructional method that should be used to teach reading, even in an orthography that is characterized by many inconsistent mappings between letters and sounds.

The conclusion from comparisons between the two views on literacy instruction makes a testable prediction: an intervention program that is based on the training of phoneme awareness (a component of the phonics method) should improve poor readers' reading problems. The data seem to confim this prediction. Galushka, Ise, Krick & Schulte-Korne 2014) performed a meta-analysis on studies that used different methods of intervention. They conclude: "The results reveal that phonics instruction is the most intensively investigated treatment approach. In addition, it is the only approach whose effectiveness on reading and spelling performance in children and adolescents with reading disabilities is statistically confirmed." (9). Findings like these further strengthen the importance of the phonics approach to teaching children how to read.

To finish this section on reading instruction, it is important to point out a painful irony in this whole debate. This irony stems from three facts. First, proponents of the whole-word method preach that they want to spare children a lot of frustration caused by the mispronunciations or misspellings that result from the mechanical application of the (canonical) links between sounds and letters. Second, despite the many inconsistent mappings between letters and sounds (and vice versa) in English, the English orthography embodies a writing system founded on the alphabetic principle. As a result, the application of many associations between letters and sounds (or vice versa) does lead to the correct pronunciation (or spelling). For instance, there is no problem to phonologically decode words like *mat, bed*, many words containing digraphs that have been learnt (e.g., *dear, tea, deep, sleep, fish, dish*), and words whose orthographic context offers a reliable basis for the pronunciation of the vowel (*fight, flight, light, might, right;* the so-called rhyme part, a phonological structure below the syllable level that has been shown to be used by children learning to read; see Bradley & Bryant 1978). In addition, many consonants have a highly consistent pronunciation. The third fact is the superior performance of the phonics method. Taken together, this leads to the conclusion that if the instructional method does not teach

English-speaking children about the (relatively) systematic correspondences between letters and sounds, the nature of the English orthography will naturally force them to identify these correspondences themselves. Obviously, children with strong analytical skills are likely to be more successful at this task than less gifted children. This brings us to the painful irony alluded to above: the whole-word method wants to avoid that poor learners would get discouraged by stumbling over the irregularities in phonologically decoding words, but it forces these beginning readers to discover the letter-sound and sound-letter relations themselves. It takes little reflection to guess which readers will be disadvantaged in discovering these relations by themselves. Indeed, precisely those readers whom defenders of the whole-word method want to protect against the frustrations caused by a phonics method. This line of reasoning also seems to echo in the following citation from a website that gives a good description of the reading wars (www.improve-education.org).

> So Whole Word is not just vicious, it's selectively vicious, harming disproportionately the defenseless, the non-academic, the poor, the minorities. Here is the final absurdity: educators pretentiously calling themselves progressive embraced a pedagogy that treads most heavily on the downtrodden. ("The War Against Reading")

4.3 The importance of phonological skills for understanding dyslexia

The previous two subsections highlighted the importance of phonemic awareness in order to be in a good starting-position for learning to read (4.1.1) and the importance of a method of literacy instruction that is based on the importance of phonemic awareness (4.1.2). This section deals with readers who face serious reading problems, despite normal intelligence, adequate education, and no sensory problems (e.g., bad sight or hearing). These children suffer from dyslexia. Dyslexia is not a disease, but it is a condition that seriously hampers the development of reading skills, such that dyslexic individuals typically lag two years behind their peers by the end of fourth grade. Needless to say, this is not only a heavy burden when it comes to reading tasks; it is detrimental for all subjects that are taught at school, as the only way to study is to reread one's notes and the texts used in the classroom.

It is impossible to discuss the vast literature that deals with the cause of dyslexia in a paper that deals with the much more general topic of orthography. A variety of causes has been hypothesized, and most of them have been shown to be incorrect (for an in-depth review, see Vellutino, Fletcher, Snowling & Scanlon 2004). The most widely held belief about the cause of dyslexia, at least in the general public, is that it is a visual deficit. Obviously, this strong, but incorrect, intuition is due to the fact that our eyes are used for reading. Moreover, the evidence that many people mention when discussing their favorite theory about dyslexia involves reading errors in which a letter is read incorrectly as its mirror image (along the vertical or horizontal axis). For

instance, a <b> will be read as a <d>, or vice versa, or a <p> as a <b> (or the opposite reversal). Such errors, too, suggest a visual problem. Vellutino dismissed the idea that dyslexia finds it cause in visual processing problems (Vellutino 1979, 1987; Vellutino & Scanlon 1982). Dyslexic and matched non-dyslexic readers were equally good in their memory of visually similar letters and words, like reversable letters (e.g., <b> and <d>) and reversable words (e.g., *saw* and *was*). They performed also equally well when they had to recognize or recall a sign from an unfamiliar writing system, more particularly, Hebrew). These findings exclude a visual problem. However, a change in the task of the first experiment did reveal a difference between the two groups. When the participants' memory was tested by asking them to write down their response, dyslexics performed equally well. However, when they had to give a naming response, the dyslexic group was outperformed by the control group. Vellutino concluded that the real problem involves the ability to name the letters, i.e., to connect the accompanying speech sound to the visually presented letter. These findings mark the beginning of the most widely spread theory about the cause of dyslexia: the phonological deficit theory (Snowling 2000; Vellutino et al. 2004).

According to this theory, dyslexic individuals read poorly because they experience phonological problems. This theory will come as a surprise to most non-experts. Understandably, they have the strong intuition that problems with written language should be sought in the sensory modality that is most strongly associated with writing, i.e., vision. Why would people who experience problems in the domain of phonology eventually develop problems in reading and writing? However, upon second thought (and before considering the empirical evidence), the idea makes a lot of sense as soon as one realizes that written language is the representation of spoken language, at least in alphabetic and syllabic writing systems, or contains markers for the pronunciation of spoken words even in logographic writing systems (see Section 2).

The evidence in support of the phonological deficit hypothesis is so large that a separate paper is required to give an adequate description of the research leading to this conclusion.

For the present purpose, it suffices to emphasize that researchers widely agree on dyslexic individuals' poorly developed phonological skills (e.g., Vellutino, Fletcher, Snowling & Scanlon 2004; Ramus 2003; Snowling 2000; Snowling & Hulme 2012; Sprenger-Charolles Colé & Serniclaes 2006). Early developmental problems in the phonological domain, i.e., in 30-month-old children, had already been signaled by Scarborough (1990). The problems manifest themselves in three different domains: (a) problems with phonemic awareness, (b) problems with phonological short-term memory, and (c) problems with phonological information stored in long-term memory.

Phoneme awareness is the ability to explicitly manipulate the sounds in a word. Dyslexic individuals find it harder than controls to repeat a word with the omission of one of its sounds (e.g., the final sound, like responding *see* upon hearing *seat*). As

mentioned in Section 4.1.1, Lyon (1995) concluded that phonemic awareness is the best predictor of later reading success. This finding has been reported in many studies (see Vellutino et al. 2004, for a review).

Problems with phonological short-term memory become clear when asking a dyslexic child (or a preliterate child at risk for dyslexia) to repeat a nonword, i.e., a phoneme string that cannot be retrieved from long-term memory because it is novel for the child (e.g., *frimp*). Snowling, Goulandris, Bowlby and Howell (1986) demonstrated that dyslexic individuals make significantly more errors in this task, while performing equally well as controls on high-frequency, i.e., familiar, words. This finding has also been replicated by many researchers (with children as participants, e.g., Baird, Slonims, Simonoff & Dworzynski 2011; Robertson & Joanisse 2010; Schraeyen, Van der Elst, Geudens, Ghesquière & Sandra 2019; with young adults, e.g., Dietrich & Brady 2001; Ramus et al. 2003). In principle, these short-term memory problems may be due to the temporary encoding of a novel phoneme string, its storage, or its retrieval from memory.

The third type of phonological problem that characterizes dyslexic individuals, involving long-term memory, becomes apparent when dyslexic individuals have to name a series of highly familiar symbols (letters and numbers), colors, or objects as fast as possible. This task is known as the rapid automatized reading test (generally referred to as the RAN) and was developed by Denckla and Rudel (1976). This discovery generated many experiments attempting to account for the consistent observation that children who will turn out to be poor readers are generally slower in the retrieval of highly familiar names under conditions of time-pressure. At the same time, these children do not experience notable word finding difficulties during normal speech (for a review of the literature, see Wolf, Bowers & Biddle 2000; but see, for instance, Swanson, Trainin, Necoechea & Hammill 2003, who conclude from their meta-analysis of the literature that the importance of the RAN has been overstated). Vander Stappen and Van Reybroeck (2018) reported evidence that indicates the independence of the RAN and phonological awareness tests, i.e., the factor underlying the performance on these tests affects different aspects of the reading process.

The phonological deficit hypothesis has led to the suggestion that a major problem of dyslexic individuals involves the nature of their phonological representations. However, it is unclear what is specifically meant by this alleged defective nature. This is highlighted by the inconsistency in the (vague) terminology that different researchers use when attempting to describe these phonological representations: poorly specified (Elbro & Jensen 2005), indistinct (Elbro 1998), less mature (Boada & Pennington 2006). A different possibility is that dyslexic individuals' phonological representations of words do not differ from those of their non-dyslexic peers but that they encounter difficulties in accessing these representations. In a Science paper, Boets and colleagues

(Boets et al. 2013) argued in favor of this view on the basis of data from functional MRI scans.

To summarize, the evidence that (a) a well-developed phoneme awareness is the best predictor of later reading success (Section 4.1.1), (b) that the phonics method has been shown to be the best method of early literacy instruction, even in a phonologically opaque orthography as the English one (Section 4.1.2), and (c) the success of the phonological deficit hypothesis in dyslexia research (Section 4.1.3), converge on the same conclusion: a strong conscious awareness of the phonemic constituents of words is crucial to learning to read in an alphabetic script. When relating this evidence to the nature of an alphabetic orthography, which is a written representation of the phonemes in spoken words, all pieces of the puzzle seem to fall together. An orthography in which the written symbols represent phonemes is likely to force beginning readers to adapt to the nature of this representational principle. The only way in which this can be accomplished is by learning the links between the written symbols (letters and digraphs, i.e., graphemes) to their counterparts in speech (i.e., phonemes). This, in turn, requires those who learn to read to become consciously aware of a word's phonemes. In other words, the nature of the orthography causes readers to develop precisely those mental representations that are required in order to apply the encoding principles behind the orthography, which is the alphabetic principle.

5. Cognitive implications of an orthography that encodes a word's morphemes

Since many (not all) alphabetic orthographies represent a word's morphological structure as well, the same question arises as the one that pertained to phonemes: does the representation of morphological structure in the spelling of words oblige beginning readers and spellers to include a word's morphological structure into their mental representations? And, if so, how big is the cognitive challenge to accomplish this? Recall that the requirement to become aware of the phonemes in a word is not a trivial one. Is this also the case for awareness of morphological structure?

In contrast to Section 4, this section will focus more strongly on spelling than on reading, although there will be a small paragraph on the role of morphological structure in reading as well. Paragraph 5.1 addresses the impact of young spellers' awareness of the root of derived words on their spelling performance. Paragraph 5.2 focuses on the impact of suffix awareness in inflected word forms on spelling performance. In contrast to much of the preceding sections and paragraphs, this paragraph will be concerned with experienced spellers, as their performance reveals an intriguing paradox with respect to the issue of this section. Paragraph 5.3 briefly discusses the

relevance of morphological structure in the recognition of written words, i.e., visual word recognition.

5.1 The importance of root awareness in young children

Rebecca Treiman and her coworkers showed that young children develop an awareness for the morphological structure of words at a relatively early age and without much explicit instruction. She was probably the first to investigate children's morphological awareness. Treiman, Cassar and Zukowski (1994) studied spelling performance in children between five and eight years old. They compared two word types in which the phoneme /t/ is realized as the sound [d] in American English: monomorphemic words (*duty*) and multimorphemic words (*dirty*). These are matched word pairs: as the /r/ is not pronounced in American English the two items in the example shared the sound ending [d]. Crucially, the [d] sound (spelled as <t>) marks the end of a root morpheme in the word *dirty* but not in the monomorphemic word *duty.* Children made significantly fewer errors on derivations. The authors argued that this outcome suggests that very young children have already developed a sense of morphological awareness and use their knowledge of the root spelling (*dirt* ends in the letter <t>) to spell the derivation. As this morphological cue is absent in monomorphemic words these words cause more spelling errors. Cassar and Treiman (1997) focused on the same contrast (monomorphemic vs multimorphemic words) but a different spelling issue: the spelling of word-final consonant clusters. Young spellers often leave out the first of two consecutive consonants. The researchers showed that fewer of these omission errors were made on morphologically complex words (*canned*) than on monomorphemic words (*brand*) when these items were matched on their final two sounds. Again, the conclusion seems to be that children's morphological awareness enables them to use a word's root spelling, resulting in fewer omission errors.

However, these two studies contain a possible confusion. In both experiments the two word types differed in two respects: (a) the critical letter occurred in stem-final position in the multimorphemic words only (the account provided by the researchers), but at the same time (b) the orthographic pattern of the roots occurred more frequently in the word stock of the language than the corresponding orthographic pattern in the monomorphemic words (as roots recur in several words). Hence, Treiman and co-workers might have found an effect of orthographic frequency instead of morphological awareness. Deacon and Bryant (2006) controlled for this possible confusion. Using item pairs like *rocket-rocked* and *turnip-turning* they matched the two word types on the orthographic frequency of the critical part. The effect survived: children were still better able to spell the multimorphemic words than their controls, a finding that supported the account provided by Treiman and colleagues.

Experiments on French children confirmed these results in English. The French studies capitalized on a property that is characteristic for French: word-final letters are often silent, i.e., not pronounced. For instance, even though the French word *gallop* ('gallop') ends in the letter <p>, that letter is not pronounced. However, when a suffix is attached to the word, turning it into the root of a suffixed derivation, the letter is pronounced. For instance, the sound [p] is heard in the derived verb *galloper* ('to gallop'). Thus one can find out that a <p> should also be spelled in *gallop.* Hence, French spellers can solve the problem of silent letters by attaching a derivational suffix to the target word. If the pronunciation of that derivation reveals the identity of a silent stem-final letter, that letter must also be spelled when the root occurs in isolation.

Sénéchal (2000) and Sénéchal, Basque and Leclaire (2006) made use of this property to test whether children appeal to this strategy. Good spellers did. They obtained higher scores on 'silent letter' words when these words could be spelled by relying on the above morphological strategy (*gallop*) than when this was not possible because the monomorphemic word did not have derivations (*tabac*, 'tobacco'). These good spellers also explicitly reported having relied on this strategy. The fact that morphological awareness was the causal factor of better spellings was demonstrated with a task tapping into children's sensitivity to morphological relations. Children who performed well in applying the morphological transformation that was instantiated by a given word pair (e.g., *gris-grise*, 'grey'; masculine-feminine) to other words, i.e., those who were sensitive to morphological relationships, also obtained the highest scores when having to spell 'silent letter' words with morphological relatives (*gallop*).

Casalis, Deacon and Pacton (2011) followed the reverse rationale. They used words whose spelling mismatched the spelling that should be correct when applying the morphological strategy. For instance, the French word *numéro* ('number') should be misspelled as *numérot* when relying on this strategy. The derived verb *numéroter* ('to assign numbers to'), in which a [t] sound can be heard, suggests that a <t> must be spelled when the root occurs without a suffix. Casalis et al. indeed observed that good spellers made these overgeneralization errors, which revealed their use of the morphological strategy. This does not mean that this morphological strategy should not be used: in general, it is helpful but in some cases it is detrimental. The findings that good spellers are more successful in spelling silent letters (Sénéchal and coworkers) but also incorrectly spell non-occurring silent letters (Casalis and coworkers) both reveal that good spellers rely on it.

To summarize, the evidence that young children (a) rely on the root of a derived word to spell the word (making fewer errors on a problematic sound in these words than in their monomorphemic control words) and (b) use a morphological strategy to spell silent letters (or make misspellings that betray reliance on the same strategy) indicates that young children rapidly become aware of a word's morphological structure and that those who are quick to achieve this insight tend to become good spellers.

The conclusion is the same as the one of Section 4: the units that are represented by the orthography of a language force beginning readers and spellers to achieve insight into this representational principle. In other words, the nature of the orthography causes readers to develop precisely those mental representations that are required in order to apply the encoding principles behind the orthography.

5.2 A morpheme-based spelling paradox in experienced spellers

The case under investigation is a persistent spelling problem in Dutch, even in highly-educated spellers and people who are professional writers (e.g., journalists, translators, book authors). The problem concerns the spelling of a subset of regularly inflected verb forms. As a starting-point, consider the example *ik word – hij wordt* ("I become", "he becomes"), which are 1st and 3rd person singular forms of the present tense. The rules for spelling these verb forms are, from a descriptive, i.e., analytic, perspective, very simple: take the verbal root and add the suffix that is appropriate for the grammatical subject. For the grammatical functions in the example, the root is *word* (from the infinitive *worden*, 'to become') and the suffixes are the zero-suffix (no suffix) and the suffix *-t*, respectively. The spelling of these forms is fully deterministic and involves simple mechanistic processes (concatenate root and suffix). The logic is identical to the logic for the spelling of the same grammatical functions of English verb forms: root plus suffix (no suffix for the 1st person, *-s* for the 3rd person; e.g., *I laugh – she laughs*). In addition to these simple rules, Dutch children have to learn these rules at an early age: around the age of 10. Finally, these errors are highly stigmatized in Dutch; making an error on a form that involves such a simple rule is considered 'not done' and interpreted as a sign of either 'negligence' of 'a lack of intelligence'. Despite this, the errors persist. Obviously, some make them more frequently than others, but all writers make them from time to time, at least in the 1st version of a text. This is the paradox: how can spelling rules that are descriptively so simple nonetheless be the source of such a persistent spelling problem? Note that even errors that are (sometimes) eventually corrected were first misspelled. Something in our cognitive system must make the application of these simple rules difficult. Consequently, a systematic study of these errors can provide a window on how the human mind works when spelling such forms.

The insights deriving from this research can be summarized as follows. (a) These errors typically occur on verb homophones, i.e., inflected forms with a differently spelled homophone in the inflectional paradigm of the verb (e.g., *word* and *wordt* have the same pronunciation, i.e., [wort], in contrast to their English counterparts *become* and *becomes*, which follow the same concatenative rules). (b) The spelling problem almost always involves the suffix part. The final letter of the root is almost always spelled correctly, even though the phoneme /d/ is inaudible (the final sound is

[t]). This finding is in line with Treiman's and Sénéchal's results (see Section 5.1) that the root spelling is often correct, even in young children, because that root recurs in morphologically complex words as well. (c) The set of verbs with homophones in their inflectional paradigm is very small (between 5 and 10%). The low-frequency occurrence of these verb forms makes it difficult for these rules to become automatized during spelling, such that their spelling requires spellers to consciously attend to the rule. (d) Most of these spelling errors occur when spellers have to write up a homophonous verb form under time-pressure and when the verb form and the word that grammatically determines its spelling (e.g., the grammatical subject, the auxiliary verb) is separated from the verb form by a number of intervening words (Sandra, Frisson & Daems 1999). The authors attributed this finding to the fact that such conditions cause a temporary overload of the speller's working memory, which makes it impossible to finish the application of the spelling rule. (e) The majority of these errors involve the intrusion of the high-frequency homophone when the target is the low-frequency form (Sandra et al. 1999). The authors explained this in terms of an influence from the mental lexicon when working-memory fails to solve the spelling problem. The higher-frequency homophone is activated more quickly than its lower-frequency counterpart, which causes spellers to write down this form upon failure of their working-memory. The higher-frequency homophone acts as some kind of 'pop-up', which is a considerable jammer when the other form is correct in the grammatical context (see also Sandra 2010; Sandra & Van Abbenyen 2009, Verhaert 2016; see Sandra 2003, for a systematic discussion).

Similar problems turn up in French (Fayol, Largy & Lemaire 1994; Largy, Fayol & Lemaire 1996) but space limitations make it impossible to discuss them here (for a systematic comparison between the problems in Dutch and French, see Sandra & Fayol 2003).

These results highlight that there is a distinction between the simplicity of spelling rules from an analytical, i.e., linguistic, perspective, and simplicity of such rules from a cognitive (application) perspective. The many spelling problems in Dutch (and French) on seemingly simple rules (for linguists and people who have been trained in analytical thinking) highlights an important fact: that a rule is analytically simple does not imply that language users will not encounter problems when they have to apply it. The fact that there is so much commotion over the recurrence of these errors reveals that there is a systematic confusion between these two different levels of simplicity.

These findings raise other questions as well. For instance, does one have to tolerate these errors? And, if so, to what extent, in all groups (e.g., also language students)? Does one have to change the spelling rules, such that they are better adapted to spellers' cognitive infrastructure? However, these questions fall outside the scope of this contribution.

5.3 The impact of encoding morphological structure on word recognition

The final paragraph of this contribution again concerns a topic that has engendered a vast literature, which cannot be given the credit it deserves (for a review, see Diependaele, Sandra & Grainger 2012). Two findings are worth mentioning. The first pertains to the impact of morphological structure in the written representation of words on the nature of the lexical representations (although this may well be a modality-independent effect). The second pertains to the role of morphological structure in the process of accessing the lexical representation of morphologically complex words in visual word recognition.

Schreuder and Baayen (1997) reasoned that a morphologically structured mental lexicon, i.e., a word store that is organized on the basis of morphological relationships among words, will contain clusters of morphologically related words. They referred to such a cluster as the morphological family of a stem. The rationale on which they based their experiments was quite intelligent. In order to investigate the existence of morphological families, they did not use morphologically complex words but morphologically simple ones. By measuring participants' response speed and accuracy on these words in a lexical-decision task (in which they have to decide as fast as possible whether letter strings on the screen are real words or possible but non-existing words), they were able to measure the indirect influence of these words' connections to morphologically related words within a morphological family. They showed that lexical decisions on monomorphemic words in Dutch are faster when these words appear in many derivations and compounds (see also Bertram, Baayen & Schreuder 2000; Krott, Schreuder & Baayen 2002). Importantly, this is an effect of type frequency, not token frequency. The number of derivations and compounds significantly affects word recognition speed. In contrast, the summed frequencies of all members in the morphological family (token frequency of the morphological family) do not affect the word recognition speed of the simplex words. Interestingly, the family size effect became stronger when the semantically opaque members were removed from the family (Schreuder & Baayen 1977; Bertram, Baayen & Schreuder 2000). The fact that type frequency rather than token frequency is the causal factor behind the effect and that semantic transparancy plays a role strongly suggests that the effect sheds light on the organization of the mental lexicon. More particularly, it seems to indicate that a stem and all words whose form and meaning have been derived or compounded from that stem's form and meaning, i.e., semantically transparent derivations and compounds, form a morphological family in our long-term memory for words. Apparently, when being presented with the monomorphemic stem, members in this morphological family are co-activated and, thus, affect the recognition speed of the simplex word. This family size effect has been demonstrated in Dutch (Schreuder & Baayen 1997; De Jong, Schreuder & Baayen 2000), English (De Jong, Feldman, Schreuder, Pastizzo & Baayen

2002), and German (Lüdeling & de Jong 2002), all of which are Germanic languages, which are characterized by a linear morphological system, i.e., stems and affixes being concatenated like beads on a string. However, Moscoso del Prado Martín, Bertram, Häikiö, Schreuder and Baayen (2004) demonstrated that morphological family size also affects word recognition speed in Finnish and Hebrew, two languages that do not belong to the Indo-European group and are themselves typologically different as well. The robust finding of the morphological family size effect across a variety of typologically different languages obviously attests to the crucial importance of morphological families in the mental lexicon, i.e., a convincing demonstration that morphological structure is a major organizing principle of the mental lexicon.

The representation of morphological structure in the written form of words has also been argued to have consequences for access to the lexical representations of these words. Longtin, Segui and Hallé (2003) reasoned that an automatic process of prelexical decomposition should cause faster lexical decisions on a stem when a masked prime is a derivation consisting of that stem and a suffix (e.g., *gaufrette-GAUFRE*, 'wafer'-'waffle'). A masked prime is a word that immediately precedes (hence, the term prime) the word that participants have to respond to. It is masked because it is presented so briefly (often only for 50 ms) and in-between two other stimuli, such that the prime is not consciously perceived (hence the term 'masking'). The term 'prelexical' is also important, because the access process cannot 'know' anything about the information that is stored in the lexicon itself (e.g., whether a word is a true derivation or not), being the process that must provide access to this lexical information store. This was the rationale behind Longtin et al.'s experiment. They reasoned that a prelexical process should be insensitive to any lexical property of the prime because such a process has no access to these properties. Firstly, the semantic status of the masked derivation should not influence the priming effect. Hence, equally large priming effects are expected for semantically transparent derivations (*gaufrette-GAUFRE;* 'wafer'-'waffle') and opaque ones (*fauvette-FAUVE;* 'warbler'-'wildcat'). Secondly, even the morphological status of the prime should not affect the size of the priming effect: a target that is a real stem in the prime should show no larger priming effect than a target that is a pseudo-stem. From the perspective of a process of blind prelexical decomposition, any letter sequence that matches the spelling of a stem and is followed by the orthographic pattern of a suffix is bound to access the representation corresponding to the spelling pattern of this possible stem, whether it is a real stem in the input word or not (*baguette-BAGUE;* 'little stick' and 'typical French bread'-'ring'). To exclude an account in terms of orthographic priming, they included a condition in which the prime also appeared at the beginning of the target but could not even be a potential morpheme, i.e., on the basis of a superficial orthographic analysis the prime could not be analyzed as the concatenation of the orthographic patterns of a stem and a suffix (*abricot-ABRI;* 'apricot'-'shelter').

Longtin et al. observed significant and equally large facilitation effects for the first three conditions and an inhibition effect for the orthographic condition. They concluded that a prelexical process of blind morphological decomposition segments each letter string that consists of a (potential) suffix into its 'morphemic' constituents. Hence, Longtin et al.'s account explains the nature of a process of prelexical decomposition. This process causes automatic access to the (pseudo-)stem's lexical representation in any word whose orthographic structure can be described as a superficial morphological structure of stem + suffix (e.g., *gaufrette, fauvette, baguette*), i.e., purely on the basis of the spelling of these 'morphemes'. In other words, the process of prelexical morphological decomposition is blind to the word's true morphological structure.

Rastle and colleagues obtained similar findings in English, using the same masked priming technique. Rastle, Davis and New (2004) used a very similar manipulation as Longtin et al. They compared the effects of three types of masked (pseudo-)derived primes on (pseudo-) stem targets: (a) derivations with a semantic relationship to their root (*cleaner-CLEAN*), (b) pseudo-derivations, whose orthographic structure could be segmented into the letter patterns of a stem and a suffix, although these letter strings had no morphemic status in the prime (*corner-CORN*), and (c) monomorphemic control words, whose initial letter pattern matched the spelling of a stem but whose following letters did not match the orthographic pattern of a suffix (*brothel-BROTH*). They found reliable and equally large facilitation effects for the first two prime types but no facilitation for the third one. The authors drew the same conclusion as Longtin and colleagues: a prelexical process segments the prime whenever the word-final orthographic pattern matches the spelling of a suffix.

6. Conclusion

This contribution has approached orthography from a descriptive perspective and from a cognitive perspective. From a descriptive point of view, a writing system is a representational system for language. It represents the meaning of words, like spoken language does. It achieves this purpose either by directly representing word meanings (logographic system) or by the indirect way of representing the words' pronunciations (syllabic and alphabetic systems). An alphabetic orthography, the focus of this contribution, always encodes the phonemes of spoken words and may also encode the morphological structure of words.

It turns out that the encoding of phonemes poses a serious challenge to beginning readers. Phonemes are not intuitively accessible in the same way as syllables, as they have no acoustic correlates but are mental abstractions. Their conscious identification

requires considerable cognitive effort on the part of the learner. Still, early literacy instruction that focuses on phonemes and graphemes, i.e., the phonics method, is far better than an approach that focuses on meaning and the memorization of whole words, i.e., the whole-word method. Not only in shallow orthographies, where this would be expected, but even in a language as English, with its notoriously deep orthography. Finally, the success of the phonological deficit theory in accounting for many aspects of dyslexic individuals further highlights the importance of phonemic awareness and other phonological skills (phonological representations in both short-term and long-term memory) in reading and spelling.

The encoding of morphemes poses fewer challenges to our cognitive system, at least at the level of word roots. Young children rapidly catch on to the possibility of using morphological relations between words for spelling purposes. However, some orthographies cause problems, even for highly experienced spellers, when a suffix must be spelled that cannot be heard in the pronunciation and the target form is homophonic with another inflected word form. The time-consuming nature of the necessity to consciously apply the spelling rule may cause a bottleneck in processing, in the form of a temporary overload of the speller's working memory, opening the door for the mental lexicon to impose the higher-frequency spelling of the homophone. An orthography that encodes the morphological structure of words also leads to the emergence of morphological families, i.e., connections between the lexical representations of words that are morphologically related. Finally, such an orthography also seems to cause a process of lexical access that initially relies on a prelexical segmentation of derived words and pseudo-derived words. This segmentation occurs on the basis of a process that is 'morphologically blind' (inevitably, as no lexical knowledge is available at the prelexical level), i.e., relies on the identification of a final letter string that matches the spelling of a suffix. Clearly, the way in which an orthography encodes linguistic units has considerable repercussions for readers and spellers, both for the processes of learning to read and spell and for the cognitive processes and representations that experienced readers and spellers rely on.

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Pragmatics of script

Nishaant Choksi
Indian Institute of Technology, Gandhinagar

1. Introduction

Early formulations grounded linguistic science in the study of "speech" (Bloomfield 1933; De Saussure 1959 [1916]; Sapir 1933). Important thinkers like Saussure claimed the study of linguistics would banish what he believed to be *la tyrannie* (the tyranny) of writing, and he, along with stalwarts like Leonard Bloomfield, are said to have "effectively removed writing from the agenda of linguistics" (Weth & Juffermans 2018: 6). The logocentric ideology underlying structural linguistics subsequently influenced fields ranging from anthropology to philosophy and cultural studies (Derrida 1976). Even those scholars who challenged many of the core structuralist tenets, such as those working in the ethnography of "speaking" tradition (Hymes 2004 [1971]; Bauman & Sherzer 1974), continued to privilege the spoken modality as the primary site of analysis. Yet a small minority of scholars working within these traditions attended seriously to graphic form. Among linguistic ethnographers, Basso (1974) argued that in letter-writing among American university students, graphic devices such as punctuation, **boldface**, *italics*, underline all have particular semiotic functions analogous to the way pitch contour or gesture mediates communication in spoken interaction. Tedlock (1995) employed elements associated with writing, such as spacing and punctuation within his transcription to analyze pitch, pauses, and vocal gestures in Zuni verbal art. Similarly within the structuralist tradition, Harris (2000) developed a framework in which writing and the graphic form establish the basis for what he calls an "integrational linguistics."

These theories questioned the distinction between writing and speech, leading to greater sociolinguistic and anthropological attention to the study of writing systems and orthography (Coulmas 1996, 2003; Jaffe et al. 2012). These studies are important, though they often subsume the study of script under more general frameworks. *Script* comprises particular graphic repertoires that combine visual form with some discrete unit of linguistic structure (such as 'phoneme' or 'morpheme') to form an ideologically unified set of graphic characters. It is different from *writing system*, which is an analytical term that describes a typological classification of script such as an alphabet, syllabary, abugida, etc. (Coulmas 1996); or *orthography*, which involves variation within a particular script (Sebba 2009). In

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addition, scripts, writing systems, or orthographies are only a few select features of a larger ecology of "graphic pluralism" (Hyland & Salomon 2010; Debenport & Webster 2019) that involves a diversity of inscriptive practices. Some of these practices include the stylization of the visual elements of script, such as calligraphy (Peng & Geng 2013), graffiti (Pennycook 2010) or font-design (Murphy 2017). Others, such as Australian indigenous sand-drawings (Green 2014), Andean khipu knots (Salomon & Nino-Murcia 2011), or emojis (Danesi 2016), are inscriptive practices that have clear connections to established literacies and graphic systems, though they would not be considered distinct scripts.

The lack of attention to script as a distinct subject of pragmatic study perhaps has to do with the dominance of one script (Roman) used for Western European languages. Yet in most other parts of the world, including large parts of Asia, Africa, and the indigenous Americas, graphic diversity is a visible reality, and script selection is often the source of contentious politics. In addition, all these regions have witnessed the birth of several new scripts within the last century, demonstrating script's social, political, and communicative importance (Kelly 2018, 2019). Drawing on several case studies, Unseth (2005) argues, "many of the processes that are observable with spoken languages are also observable in the study of scripts, including matters of language/script contact, death, and gender" (20). Employing terms such as "identity" and "code-switching," Unseth seeks to incorporate the study of script into the larger framework of a primarily speech-based sociolinguistics, challenging the subordinate status of writing and script vis-à-vis spoken language. However, he also admits that there are some "fundamental differences between languages and scripts" (ibid). Given that we know now that the concept of the linguistic code itself is an ideological artifact (Silverstein 2000; Pennycook & Makoni 2005), a pragmatics of script must propose a new understanding of the relationship between script and language. In this article, I will outline how script, through its visual form, durability, and inscriptional features allows for different communicative possibilities than spoken language, and therefore must be understood analytically as separate from (though not subordinate to) speech. I propose to do this in three sections: in the first, I analyze how in situations where communities have access to multiple graphic repertoires, certain repertoires are aligned with a linguistic code to create script-languages, or how certain groups align with one script or another to form "script communities." Second, I discuss the ways in which multiscriptality re-emerges even after script communities stabilize by outlining writers' scalar realignments of script and code to articulate hybrid positioning that challenges dominant linguistic and graphic hegemonies. Finally, I discuss script as an embodied practice, arguing that the graphic sign affords a different relationship between language and the body than spoken language. I end the discussion with possibilities for future research in the field of the pragmatics of script.

2. Script communities and graphic differentiation

Script as a graphic expression of the identity of an already established speech community assumes a "speech community" in which a unified social collectivity is assumed to speak a particular linguistic code. However, this has been challenged by linguistic anthropologists and sociolinguistics, who argue that speech communities are comprised of an overlapping set of communicative repertoires that by their nature are "multilingual and multidialectal" (Irvine 2006: 691). The unity of the speech community does not therefore exist in actual practice. The "language community," however, is the ideological projection of unity where a "reference group" orients to a "denotational norm, however much within its compass they recognize situated variation" (Silverstein 1998). Language communities are often based on a conception of a 'standard' language to which people may affiliate even though they generally do not speak (Silverstein 1996; Agha 2003). In the case of endangered languages, speakers may align themselves with a linguistic code they may not speak at all (Dorian 2009; Meek 2010).

Although the analytical demarcations of language and speech community "do not identify the same population" their "social dynamics […] affect one another" (Irvine 2006: 695). Irvine suggests that one analyze the inter-related dynamics between the two through the lens of differentiation. In a series of studies, (Irvine & Gal 2000; Gal 2016) outline a bundle of semiotic processes involved in processes of differentiation through which ethno-linguistic communities arise in situations of linguistic diversity. These processes include "rhematization" (or iconization), in which a linguistic code or code-feature becomes identified with a person or group within a multilingual situation; "fractal recursivity," where distinctions at one level of analysis, such as the difference between types of persons become projected on another level, such as the difference between linguistic codes; and "erasure," by which histories of linguistic diversity are obscured in order to create cohesive ethno-linguistic wholes.

The distinction between "language" and "speech" communities and the processes of linguistic differentiation outlined by Irvine and Gal could be usefully applied to the study of differentiation in situations of what Singh (2001) has called "multiscriptality," where several graphic repertoires are employed simultaneously irrespective of linguistic code. For instance in South Asia, which is not only highly diverse in terms of linguistic varieties, but also in terms of scripts, one routinely sees the same linguistic codes written in several different graphic varieties. The most famous case is that of Hindustani, a North Indian *lingua franca* derived from the *khari boli* dialect spoken around Delhi, and written in Persio-Arabic script, the Brahmi-derived Devanagari script and Kaithi scripts, among others. These scripts were not reserved for Hindustani, but also used extensively for other languages as well, from Punjabi in the north (Murphy 2018) to Tamil in the south (Tschacher

2018). However, in the late nineteenth and early twentieth century, religiously identified elites in British India sought to project Hindustani in terms of two separate 'languages,' "Hindi", written in the Devanagari script, and "Urdu", written in the Persio-Arabic script as part of a nationalist project (Rai 1984; King 1994; Ahmad 2008).

What occurred then was a differentiation based on script rather than language resulting in two distinct script communities. The Devanagari script became identified with "Hinduism" and later the nation-state of "India," while the Persio-Arabic script became identified with Islam, and the nation-state of "Pakistan." Kaithi was erased, and later fell out of use completely. As these script-languages became standardized, linguistic differentiation occurred in the literary varieties with the standard Hindi lexicon borrowing more from Sanskrit, the classical language identified with the Devanagari script, while standard Urdu adopted a lexicon derived more from Persian, the literary language associated with the Persio-Arabic script. However even today the spoken varieties of this language are mutually intelligible, and the primary marker of 'linguistic' differentiation is script.

East Asia presents another example of graphic diversity that consolidated and then differentiated based on script. Throughout much of the era of imperial state-formation, the Chinese script (*hanzi)* was used to "create a model of society against which actual institutions were measured" (Lewis 1999: 2). The use of characters had semiotic associations distinct from the use of individual languages. Imperial China had no standardized language of rule, and rulers administered their territories in the several individual languages of empire but through the Chinese script. In other empires, such as those of Japan, Korea, or Vietnam, Chinese script was adopted to project imperial and religious power, though in each polity individual languages (such as Korean or Japanese) were maintained as the medium of rule.

In contemporary East Asia there occurs both a differentiation and consolidation of script communities based on the shared inheritance of Chinese characters. Within the current nation-state of China, several so-called 'dialects' of Chinese that are significantly different from one another, such as Cantonese, Mandarin, Hakka, Mongolian, etc. are currently written in Chinese characters. Even when some regions, seizing on the global trend of heritage tourism, seek to promote their particular regional varieties (*fangyan*) by displaying them in graphic form for the first time, they still use the Chinese characters. Instead of script alternation, these public displays must show the local, 'authentic' linguistic flavor graphically by writing the characters in innovative styles, or by altering of morpho-syntactic sequence of characters to make them unreadable to those familiar with the dominant Chinese varieties like Mandarin (Wang 2018). The term "Chinese" then could be seen as denoting primarily a *script* community, although like in India, the formation of the nation-state and standardization has allowed for a blending between conceptions of language and script.

While China has had a long history of graphic consolidation, changes effected by the Communist government of the People's Republic of China, led to differentiation, where the mainland adopted a simplified character system while areas outside the Communist purview such as Hong Kong or Taiwan retained the traditional characters. As Wong (2016) shows in his study of script use in Hong Kong, which became a territory of China in 1997 after over a century of British rule, differences between traditional and simplified characters have been exploited by a segment of local media for ideological ends. Wong documents how widely circulating and mediatized satirical poetry juxtaposes traditional and simplified script, and metadiscourses about their graphic nature, to iconize the difference between an urbane, sophisticated Hong Kong identity and the rustic, simple-minded identity of mainland Chinese. The two graphic varieties placed side by side results in the iconic projection of two distinct, and ideologically charged, script communities: an autonomous, progressive Hong Kong marked by traditional characters, and a regressive, corrupt mainland that seeks to extend its rule through the use of defective, simplified characters. Graphic difference allows a segment of Hong Kong media to advance discriminatory stereotypes against mainland Chinese and publicize their political opposition to mainland rule without having to state these claims overtly.

In Japan, Chinese characters (*kanji*) are also used and were the dominant mode of writing among the state, literary, and religious elite for centuries. Unlike Korea or Vietnam, which abandoned the use of Chinese characters, the modern Japanese script retains the Chinese characters, combining them with two indigenous syllabaries: *katakana*, and *hiragana.* Katakana is used for writing so-called "foreign" words, while Hiragana, originally designed as a writing system for women (Unseth 2005), is now considered an original "Japanese" script, used for writing particles and lexemes for which Chinese characters are found unsuitable. Chinese characters are used for nouns and verb stems of Chinese or Japanese origin. Usage of these different scripts, however, transcends their functional use; they also iconize different types of persons depending on age, gender, etc. In his analysis of script use in Japanese graphic novels (manga) Robertson (2017) traces how 1st person pronouns are written in *katakana* for younger male characters to show a modern, youthful feel, while *kanji* is used for older characters to express erudition. 1st person pronouns for female characters are written in *hiragana*, which is a more rounded script and has a connotation of being both feminine and cute/child-like. The creative play within the script system parallels the ways Japanese speakers often switch between different regional dialects, or mediatized 'role languages,' to invoke specific characters and identities in spoken language (Yamashita 2019). Yet despite the presence of multiple scripts and their social differentiation, the graphic diversity does not result in the projection of different script communities. Instead, a political ideology of "monolingualism," which arose along with Japanese state formation in the late nineteenth century and engendered a strict

separation between what constitutes "Japanese" and "foreign" in terms of language and script, encompasses this graphic diversity within a homogenous conception of a single script-language community (Shoji 2019).

The issue of the script is also relevant in projects of language revitalization and maintenance for indigenous language communities. For instance, Santali, an indigenous Austro-Asiatic language spoken in eastern India, Bangladesh, and Nepal, is currently written in five scripts, including Roman, Eastern Brahmi (Bengali), Devanagari, and a recently created script called Ol-Chiki. Despite not being part of the formal education system, there has been a long tradition of Santali language media production, though as Choksi (2017) argues in a case study from one area of eastern India, attitudes toward script differ depending on generation. While an older generation of Santali language media producers focused on promoting the Santali language, disregarding the issue of the script, a newer generation is committed to the equation of script and community in order to promote community autonomy. This has prompted magazines to shift from using the Eastern Brahmi script, which is also used to write Bengali, the dominant Indo-European language of the region, to using Ol-Chiki script, despite the lower proficiency in Ol-Chiki among the community at large.

Similar processes can be seen in indigenous communities in the Americas. Bender (2002) shows how in the eastern United States, indigenous Cherokee use both Roman and the Cherokee syllabary to write the Cherokee language, although for different purposes. Yet because ideologically important texts are written in the syllabary such as the Cherokee New Testament, in addition to the syllabary's close association with Cherokee sovereignty, many Cherokee identify with the syllabary despite not knowing how to read it. The syllabary is also central to the self-representation of the community for the tourist economy. Eastern Cherokee therefore align with the syllabary for both group-internal as well as group-external reasons. In the Canadian Arctic region of Nunavik, Inuit continue to display the local syllabary in addition to Roman, defying attempts by the transnational Inuit Circumpolar Council or the Canadian government's effort to promote a standard Roman script for the language (Daveluy & Ferguson 2009). Puerto Rico has witnessed parallel dynamics, where residents who want to revive indigenous Taino heritage have devised a distinct script in order to further their claims of Taino as a legitimate, and separate, language community on the island, despite the loss of language (Feliciano-Santos 2017).

3. Graphic affordances and script-code (mis)alignments

Having outlined the ways in which script is susceptible to ideological processes that either separate or align it with a particular linguistic code, I will now discuss the ways in which the iconic contrasts available within and across script systems condition the

ideological alignments between particular scripts and codes. Understanding the pragmatics of script-code alignment is especially important for studies situated in multiscriptal milieus. Recent sociolinguistic and pragmatic research has sought to challenge the boundaries within 'code' itself by proposing the term "translanguaging" to replace concepts such as code-switching or multilingualism (Cangarajah 2011; Creese & Blackledge 2015; Pennycook 2017). Similarly, script researchers have focused on the graphic affordances available in the visual form of script to show how the script usage may expand or transgress ideological boundaries of discrete scripts or naturalized alignments between script and code.

Androutsopoulos (2016) coined the term "trans-scripting" to account for the ways in which in computer-mediated communication speakers creatively mix different scripts within words or phrases. He analyzes for example Greek internet users' use of Greek graphemes within the Roman script in transnational internet fora to index specific stances and ideologies. The idea of 'trans-scripting,' Androutsopoulos argues, provides a "graphocentric approach" that "suggests an analysis in terms of iconic contrasts" (Androutsopoulos 2016: 291). These perceived contrasts depend on an already existing ideological alignment of script with a language, for instance the Hellenic Greek script with Modern Greek, but they also allow one to see points where graphic elements transcend the boundaries of one or another code such as Greek and English (Androutsopoulos 2012). Angermeyer (2005) has demonstrated the interpretative potential of this kind of 'trans-scripting' in his study of print advertisements circulating among the Russian immigrant community in New York City. He describes how certain shared graphic elements of the Cyrillic and Roman scripts are routinely manipulated in advertising to specifically target bilingual community residents that have knowledge of both scripts. The iconic manipulation, akin to what Woolard (1998) has called "bivalency" for the study of spoken language, is made possible through the use of a diversity of scripts within lexemes or phrases, transforming the indexical associations of the visible word without changing referential meanings.

In some cases, slight alterations within particular script systems can recursively invoke the difference between entire script communities. This is especially relevant in places like South Asia, where script communities have diverged but where there remains significant overlap in the graphic practices of reader-writers. The situation of Hindi and Urdu as two divergent script communities has already been discussed above as a classic case in which speakers of the same language aligned themselves with different scripts, resulting in the formation of two different script, and subsequently, language communities. These communities correlated with each script's association with religious identity (Hindusim and Islam, respectively), and with the two nation-states, India and Pakistan, that formed in the wake of the partition of British India along religious lines.

Despite the Partition, India still is home to a large minority of Muslims who continue to identify as speaker-readers of Urdu. However, as Ahmad (2011) details in his study of graphic practice among Muslims in contemporary Delhi, literacy among younger Muslim residents in the Persio-Arabic script has been declining due to government negligence in promoting the language as well as stigma associated with public use of the script as a result of the partition. Consequently, more and more Muslims who identify with the Urdu script community are writing Urdu in the Devanagari script, the script stereotypically identified with "Hindi." Since there is very little difference between the languages at the spoken level, Ahmad demonstrates how Urdu-Devanagari publications incorporate certain graphic features of the Persio-Arabic script into the Devanagari script through the use of diacritics. As the common spoken variety from which Hindi and Urdu derive contains significant loan vocabulary from Persian and Arabic, the Devanagari script historically had conventions to mark certain words of Persio-Arabic origin with diacritics to indicate sounds not present in the Devanagari abugida. For example, the Devanagari velar plosive grapheme <ka> is marked with a dot to signify a uvular <q> in the original loan. In Persio-Arabic script, this consonant would be expressed by a separate grapheme altogether, *qaf*.

These graphic diacritics then come to iconize Persio-Arabic elements within the Hindustani language, although many contemporary Hindi publications leave these diacritics out, de-emphasizing the lexemes' connection with Persian or Arabic languages. Devanagari Urdu not only rigorously maintains these distinctions, but accentuates them by adding new orthographic innovations such as the use of the Devanagari vowel grapheme /a/ to represent the phonemically empty Persio-Arabic grapheme *ain*, or the diacritic for the glottal /ha/ grapheme to represent the phonemically empty distinction between *choṭī hē* grapheme and the *do-cashmī hē* grapheme in Persio-Arabic Urdu. These innovations lead to a graphic expression of words which when spoken would be recognizable to speakers of both "Hindi" and "Urdu" but are not recognizable to readers of only Hindi Devanagari or Persio-Arabic Urdu. Once again, just as script (not language) engendered the difference between Hindi and Urdu, Ahmad shows how alternations within one script, Devanagari, can maintain the difference between script communities. Although the Devanagari script used by writers of Hindi and Urdu may appear the same to an outside observer, the importance of the diacritics or other orthographic innovations can only be understood by those who have a multiscriptal repertoire that includes basic familiarity with both Devanagari and Persio-Arabic scripts.

4. Scaling multiscriptality

As sociolinguists and linguistic anthropologists have increasingly engaged in questions of space, time, migration, and circulation, the theoretical construct of "scale" has

become an important analytical tool to account for the ordered diversity of linguistic repertoires within and across speech communities. The term 'scale' was first articulated in studies of globalization and migration (Blommaert, Collins & Slembrouck 2005) but was later applied more broadly. Recently, analysts have discussed "scale" as a way in which participants "define the scope of spatiotemporal understanding" more broadly (Blommaert, Westinen & Leppänen 2014). Other theorizations attempt to move the concept away from the association of discrete, hierarchically organized analytical levels, and focus instead on the production of scale, or "scalar projects," whereby actors draw "boundaries" in a variety of ways to differentiate "one place, time or experience from another" (Carr & Lempert 2016: 10).

While studies of scale cover a range of communicative practices, graphic inscription, due to its durability and ability to be interpreted across a range of contexts, forms a particularly fruitful area to investigate scalar complexity. In his study of the graphic landscape of a superdiverse neighborhood in Antwerp, Belgium, Blommaert demonstrates how a "close analysis of visual data" allows one to attend to the "semiotization of space" through which actors "co-construct and enact an 'order' semiotically inscribed in that space" (Blommaert 2013: 16). In multiscriptal milieus, the way scripts are distributed, and the ideologies of both writers and readers, serve to "produce" scalar complexity, including ideas of global or local, or center and periphery within everyday spaces.

LaDousa's study of the use of Devanagari and Roman script in the North Indian regional center of Banaras provides an example of how residents deploy script's graphic affordances to scale visual tokens (in this case school advertisements) along lines of "center" and "periphery" irrespective of linguistic code (LaDousa 2002). In Indian schools, both English and Hindi are taught in schools, although schools taught in English "medium" have a greater cache, aligning with ideas of upward mobility and urban centers such as New Delhi. Hindi schools on the other hand are aligned with everyday life in the North Indian periphery. This distinction between 'medium,' LaDousa shows, recursively is applied to Devanagari (Hindi medium) and Roman (English medium) scripts in school advertisements such that script becomes the main marker of the center/periphery distinction and not code-distinctions given the routine mixing of both Hindi and English lexemes within the broader linguistic landscape.

While LaDousa addresses complexity between two languages and scripts, Choksi (2015) relates another case in South Asia in which one language, Santali, is written in four scripts including Roman, Devanagari, Bengali, and the newly created script Ol-Chiki. The use of multiple scripts on the built environment in one small village market in the forested areas of eastern India allows actors to instantiate different kinds of scalar projects, through which they contest or reinforce dominant caste and class hegemonies in the area. For instance, Santali written in the regional script Eastern Brahmi, the script also used to write the dominant Bengali language, projects Santali as an equally

viable local language to Bengali, the use of Ol-Chiki/Roman script combinations on posters and signs allows Santali speakers to view their language, and by extension their language community, as trans-local, indexing the wide dispersal of Santali communities across eastern India. However, upper caste non-Santals also use Ol-Chiki script on their signboards, but in ways that clearly subordinate the script to Eastern Brahmi and Roman, and reinforcing the conception of Santali as a subordinate local dialect. Even though code distinctions are not operative in many of the cases, script mediates conceptions of the social position of languages and communities, serving a critical role in the ongoing contestation of space and resources that characterizes caste-demarcated publics in rural India.

The use of Ol-Chiki by Santali speakers to transcend the connotation of the 'local' also suggests the different roles recently created indigenous scripts may play in the scalar imaginations of so-called "local" communities in ways similar to what Silverstein outlined for language communities (Silverstein 1998). For instance though they do not use scale in their analysis, Scribner and Cole (1978) provide a description of the use of the indigenously created Vai script in western Africa within the larger multiscriptal milieu. They suggest that speakers use the indigenously developed script primarily for genres that parallel face-to-face interaction such as letter-writing, while the use of Arabic script links the communities to the pan-Islamic ummah. Roman script on the other hand, for speakers, indicates community external relations, such as communication between community and state. Smalley et al. (1990) describe how the newly created Pawah Hmong script, initially circulated among a small region of Hmong speakers in Southeast Asia, came to be emblematic of particular transnational networks following Hmong migration to the United States. The script still constructs an idea of 'locality' though it is circulated and cultivated globally (Appadurai 1996).

5. Script and embodiment

In their recent work on language and embodiment, Bucholtz and Hall (2016) write "just as bodies produce language, so the converse also holds: Language also produces bodies." (173). Bodies, they suggest, are "sites of semiosis," constructed by participants through "cultural discourses about bodies as well as discourses of bodily regulation and management" (ibid.). The "voice," for example, which is considered the articulatory origin of language, is actually socially indexical with a range of identities such that similar elements of articulation or phonation come to iconize very different personas depending on the social context (179). By separating semiotic processes of embodiment from the speaking subject, they also open up ways in which material practices of communication such as script interact with ideas and practices of embodiment and the construction of an embodied subject (188).

In fact, indigenous conceptions of script have for a long time addressed the relation between the written word and embodied practice. Crucial to this conception has been script's relationship with ritual, and the role of graphic elements to direct and sublimate embodied practices associated with ritual. In Japan, esoteric Buddhism reversed the ancient Indian idea that the voice (or syllable) preceded the graphic sign, and used the spatial and graphic organization of a Brahmi script system (*Siddhāṃ*) to direct oral recitation and meditative practice (Rambelli 2013). Boone (1994), in her introduction to an edited collection on pre-Colombian Mesoamerican writing systems, discusses how these scripts routinely encoded features of gesture and other embodied features of oral performance.

While explicit connections between the body and script have been lost in widely circulating, standardized script systems, the connections are maintained in the development of new scripts in the nineteenth and twentieth century by indigenous communities the world over, offering contemporary examples of how embodiment remains a key feature of graphic production and interpretation. In the North American context, Basso (1992) offers an illuminating analysis of the Western Apache script developed by Silas John in the early twentieth century. The script was to be used specifically for ritual purposes, and encodes both speech (at the phonemic level) as well as nonverbal behavior: symbols that "tell what to say" vs. symbols that "tell what to do" (39). Many newly created or revived scripts also reference human anatomy, such as the Eskaya script used for Ekskayan and Visayan in the Philippines (Kelly 2016) or the revived Meitei Mayek script for Meitelon in northeastern India (Singh 2011). Other new scripts are hybrids, in which graphemes combine elements of the human body with other signs of the landscape, such as the newly created scripts for Munda languages like Sora, Ho, and Santali in eastern India (Zide 1999; Choksi 2018). As many of these studies note, the iconic relations between these scripts and the body are taught as part of the scripts' pedagogy. Moreover, as Faudree argues in her study of literacy practices among the indigenous Mazatec in Mexico (Faudree 2013), in recently written down indigenous languages literacy is often learned in conjunction with embodied practices of oral performance such as song or dance. The practice of reading, writing and learning a script exists in a mutually constitutive relationship with conceptions of the body, oral performance, and bodies' positions within wider ecologies. Examining these relations may shed light on why scripts continue to be created within indigenous communities and on the scripts' function within a wider multiscriptal milieu.

Besides new scripts, another fruitful area of research in the area of script and embodiment is the study of scripts for sign languages. Dominant western ideologies that tend to view writing as a representation of language (usually conceived of as oral language) have traditionally posed a challenge to the creation of writing systems for sign languages. However, as Hoffman-Dilloway (2011) documents, some scripts such as SignWriting, developed by Valerie Sutton in 1974 originally as a dance notation,

have achieved a degree of success in pragmatically and semiotically integrating the graphic and embodied sign. According to Hoffman-Dilloway, earlier sign language scripts such as the Stokoe system maintained "structuralist" ideologies of language, creating an arbitrary linearity that represented only "manual gestures," obscuring the "non-manual grammatical markers" such as facial expression or postural shift that is critical for the uptake of meaning in languages such as ASL (Hoffman-Dilloway 2011: 349). Consequently, the Stokoe notation resembles a calque of dominant script-languages such as English, and therefore did not gain much currency outside academic work on sign language.

On the other hand, SignWriting derived not from structural linguistics but from notating embodied performance (dance), resulting in a graphic system more easily amenable to encoding the various features of the signed phoneme or morpheme. The script iconically combines distinctive features to graphically express signs, allowing for a set of core graphic hand-shapes to be "modified in essentially limitless ways" (Hoffman-Dilloway 2011: 350). The flexibility of SignWriting meant that the script could be adapted for several different sign language systems around the world, and is currently used by groups in over 30 countries. This has led to interesting debates on transnational SignWriting listserves between certain features of embodied signed practice, such as "mouthing" the spoken language while signing, and the process of encoding these features in script. Such debates "scale" the script, affiliating signers to specific regional, national, or transnational networks depending on what aspects of the graphic sign they choose to encode through the script, or how they react to circulated SignWriting texts from different areas on fora such as the listserver (Hoffman-Dilloway 2013).

Another feature of embodied practice that pragmatically transformed the SignWriting script was the shift from the "receptive" viewpoint, which is from the point of view of someone viewing the signs, to the "expressive" viewpoint, or from the point of view of the one producing the signs (Hoffman-Dilloway 2018). Initially Sutton, the inventor of a script and a hearing person, objected to the shift because one cannot "see the face," as she believed the facial representation embedded in the script was an essential graphic feature. Yet she later agreed with Deaf activists who felt that writing from the expressive viewpoint was more natural for users of sign languages. In order to facilitate expressive writing, activists altered the linearity, preferring to write the notation vertically instead of horizontally, and also added conventions for reversing viewpoint and for indicating spatial rotation. These modifications better allowed writers to express the embodied experience of sign language production instead of compelling writers to occupy the position of an imagined interlocutor (viewer) each time they use the script. While expressive SignWriting has proved more difficult for hearing persons and those d/Deaf persons less familiar with sign language to understand

and master, experienced signers are now more comfortable in using the script for a variety of purposes (Hoffman-Dilloway 2018: 96–97). As Hoffman-Dilloway relates from her own experience in adopting this graphic variety for academic transcription, learning the script from the expressive viewpoint transforms the way one "feels" one's own body and its spatial and social orientation. Hoffman-Dilloway's discussion of the transformations of SignWriting demonstrates the mutually entangled ideologies that structure the relationship between script, language, and the body. As has been cited with the example of recently created or revived scripts, her insights on SignWriting do not have to be relegated to sign language scripts alone, but can be extended to graphic practice more broadly.

6. For a future pragmatics of script

In this short review, I have introduced the concept of "script community," and outlined a series of studies that illustrate the various alignments, re-alignments, and mis-alignments between script and code that speakers deploy within and across graphic repertoires to pursue social projects. I have also shown how writing offers different possibilities for the study of language and embodiment, a domain previously considered intimately connected with speech. By separating script and code, I believe, one may move beyond discussions that seek to incorporate script within the larger framework of sociolinguistics and pragmatics that is primarily based on the study of spoken language. For instance, future studies on the relation between script and gesture, opened up by attention to questions of embodiment or the sign language scripts, could prove useful to study for an evolutionary study of writing, and of language in general. The attention to visual and inscriptional form could also address new fields in the study of literacy, moving beyond the binary of 'reading' and 'writing,' or even socially-situated literacies to show how our conceptions of literacy are fully entangled with graphic pluralism and practice (Debenport & Webster 2019).

While this review has covered certain major trends in recent script-related research, there were also several possible domains of research not addressed which offer fruitful possibilities for further research. For instance, what would be the graphic form's role in mediating the relation between writing and affect (Besnier 1995; Kataoka 1997), or what is script's position in the emerging work on the study of literacy ecologies (Barton 2017)? Finally, as Tedlock proposes in his notion of "phonography" (Tedlock 1983), foregrounding script could form the basis of a different kind of pragmatics in which materiality, durability, and visuality provide alternative theoretical standpoints from which to study both written and spoken interaction.

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Pragmemes

Keith Allan
Monash University

The term *pragmeme* was first used and described by Jacob Mey:

> The theory of pragmatic acts [… focuses] on the environment in which both speaker and hearer find their affordances, such that the entire situation is brought to bear on what can be said in the situation, as well as on what is actually being said. […T]he emphasis is not on conditions and rules for an individual (or an individual's) speech act, but on characterizing a general situational prototype, capable of being executed in the situation; such a generalized pragmatic act I will call a *pragmeme*. The instantiated individual pragmatic acts, […] *practs*, refer to a particular pragmeme in its realizations. (Mey 2001: 221)

The idea is that the context in which a speech act occurs affords a set of possibilities to both speaker S and hearer H for what kinds of things can appropriately be said in respect of that context. In later work, Mey offers additional information:

> The pragmeme captures a *function* from user to user, from user to the world, and vice versa; as such it is a pragmatic function, establishing and warranting a particular *pragmatic act*. The pragmeme is thus the embodied realization of all the pragmatic acts (or 'allopracts') that can be subsumed under it, such as the various manifestations of expressing gratitude, in much the same way as the various phonetic manifestations of /r/ may be caught under the umbrella of the same phoneme. (Mey 2016: 139)

The pragmeme is a function that 'maps situations onto individual human activities' (ibid.). Thus, for example, the pragmeme of insulting maps the attack on the target (with offensively dishonouring or contemptuous speech or action and/or treating the target with scornful abuse or offensive disrespect) to the utterance that seeks to achieve the perlocutionary effect of demeaning someone and/or of affronting or outraging them by manifest arrogance, scorn, contempt, or insolence.

A second example: suppose a (male) colleague turns up late for a meeting and on entry immediately says *I'm sorry, my car broke down.* It will normally be understood that he is apologizing for being late, not for the fact that his car broke down, and that mention of the car break-down is intended to explain his being late because car-break-downs disrupt journey schedules. Even if none of his colleagues knew he was coming by car, he does not have to spell this premise out, it is implicit in (and non-monotonically entailed by) what he has said. The situation demands a pragmeme of apology; this particular way of apologizing is a pract which has many characteristics shared by other allopracts of the same pragmeme.

https://doi.org/10.1075/hop.22.pra7

A final example. There are many different views and definitions of *reference* (see Sullivan 2006 for a survey). Most philosophers and linguists would agree that reference is a relation that obtains between language expressions and what speakers use those expressions to talk about. For the pragmaticist the focus is on a speaker's use of a language expression in the course of talking about (referring to) its denotatum, in other words, on a speaker's act of referring. For instance, if Joe says *Saddam Hussein is dead*, Joe refers to someone called Saddam Hussein whom he supposes we can identify from common ground (see Allan 2013; Stalnaker 2002, 2014); Joe also refers to the (purported) fact of Saddam's death at some unspecified time in the past. What is less obvious is that a hearer's recognition of the speaker's reference is also a pragmatic act of interpretation that uses context and common ground to make sense of the utterance: the fact that literary criticism, academic and legal argument, etc. flourish because the 'same' text can be interpreted differently by different hearers and readers surely proves that interpretation is active not passive.

So, referring is a class of pragmatic act that maps something in the context to words through which S identifies that something to H. Suppose S utters (1) when standing before El Temple de la Sagrada Família in Barcelona.

(1) Spain's greatest architect designed this church.

Anyone who has visited la Sagrada Família will be aware that it is visually dominant such that an utterance of (1) made when standing in front of it will unambiguously refer to la Sagrada Família unless the speaker is very obviously NOT referring to it because, for instance, s/he is pointing to a picture or description of another church (such as the Basilica di San Marco) in a guide book. Ordinarily, the complex demonstrative *this church* refers to the most salient church in the foreground of attention – which identifies a necessary condition of the pragmeme for a particular kind of pragmatic act of reference that is clearly generalizable to a wide variety of occasions. There are several reasons for thinking that, in the situation of utterance described above, the reference to 'this church' would be unambiguous. One is that S will know at least roughly where she is and, under most circumstances, so will H. Even if S and H had not planned to be in front of la Sagrada Família and merely happened upon it, they would see that (based on encyclopaedic knowledge) the building in front of them looks like a church. They might also know that there is a church called (El Temple de) la Sagrada Família (or a translation of that name into another language). Ordinarily, but not necessarily, this will be strengthened by additional information such as knowledge of its approximate location and appearance, and/or some idea of its history and who designed it. There is no architect present, only a building of a kind that we know by experience (encyclopaedic knowledge) will have been designed by an architect. This is the route by which reference to the architect of the building is established. The name of the architect, Antoni Gaudí, must be sourced via pragmatic inference from encyclopaedic knowledge (see Allan 2006).

To successfully perform a pragmatic act of reference requires astute assessment of the context and common ground and choice of the language expression (the pract) that will best point the hearer to the intended reference in those circumstances.

Kecskes 2010 has criticised Mey for focusing on the situation of utterance to the exclusion of the socio-cognitive attributes of pragmemes:

> This [socio-cognitive] view unites the societal and individual features of communication and considers communication a dynamic process in which individuals are not only constrained by societal conditions but they also shape them at the same time. Speaker and hearer are equal participants of the communicative process. They both produce and comprehend relying on their most accessible and salient knowledge expressed in their private contexts in production and comprehension. (Kecskes 2010: 2890)

I doubt that Mey would dispute the importance or relevance of Kecskes' account of pragmemes. I certainly incorporate within my own notion of 'context' and 'common ground' both Mey's situational and Kecskes' socio-cognitive aspects of a speech event (or other communicative act), and most definitely regard context as an essential ingredient for the proper interpretation of language expressions, including pragmemes (see Allan 2018).

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Ta'ārof

Pragmatic key to Iranian social behavior

William O. Beeman
University of Minnesota, Minneapolis

1. Introduction

Taʿārof (تعارف) is a Persian/Arabic term based on the Arabic triliteral root عرف [ʿarafa], "to know." Other words derived from this root include knowledge, acquaintance, familiarity, skill and information. Ta'ārof literally means "becoming acquainted" in Arabic. In some modern Arabic dialects it is used to indicate "dating."

In Persian, however, ta'ārof is used to indicate a nearly untranslatable, but fundamental cultural concept encompassing a broad complex of behaviors in Iranian life that mark and underscore differences in social status and degrees of social intimacy. Ta'ārof has been noted as a feature of Iranian life by non-Iranians for centuries. It has been greeted with fascination and remains one of the most frequently noted aspects of Iranian social life both by native Iranians and visitors.

Ta'ārof is often equated with "politeness," but in effect it reflects much more than "polite language" (cf. Izadi & Zilaie 2015; Izadi 2016, 2019). Indeed, though ta'ārof has largely positive connotations in Iranian society, it can also be used in ways that might be interpreted as impolite, manipulative, or self-interested (Beeman 1977, 1986, 2001). I hope to show in this discussion that it is a very elaborate pragmatic complex of language management, behavioral actions, and social attitudes, reflecting a deep-seated philosophy about human relations and spiritual attitudes. The fact that it is identified as a cultural institution in Iran is evidence of its differentiation from other analogous systems of linguistic formality, deference and politeness.

It should be noted, however, that it is virtually impossible to exhaust the topic of ta'ārof in a single article. It is too complex to encapsulate in a short description. Whole theses and books have been devoted to exploring ta'ārof. In all Iranian communities, whether in Iran proper or abroad in diaspora, it is the subject of everyday conversation and public comment, a regulator of behavior, and something that must be included as an aspect of all literary and artistic works where human interaction is featured. Making ta'ārof completely comprehensible to a non-Iranian audience is hard, whether linguistically in translation, or in explainingh Iranian behavior (Bahmani 2004; Beeman 1986; Mahdavi 2012; Hanson 2008; Miller et al. 2014; Taleghani-Nikzam 1999).

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Exact definitions for ta'ārof are difficult, as are all terms that indicate cultural institutions. Laurence Loeb glosses it as "compliment, ceremony, offer, present" (Loeb 1977: 171). Elsewhere I have defined it as "the active, ritualized realization of differential status in interaction." (Beeman 1986: 56).

Ta'ārof underscores and preserves the integrity of culturally defined status roles as it is carried out in the life of every Iranian every day in thousands of different ways. Iranian youth cry in despair at its pervasiveness, but they are powerless against it, and practice it themselves even while complaining about it.

As I will detail in this paper, there is both a linguistic and a social behavioral component to taʿārof. Linguistic taʿārof involves two kinds of language phenomena. One aspect has to do with word choice. As with many other languages in the world from different language families, word substitution is used to indicate social status differences between individuals. The familiar differences in Indo-European languages (of which Persian is one) in pronoun differentiation (*tu/vous* in French, *du/Sie* in German, *ty/vy* in Russian) can provide some flavor of the more complex word substitution seen in ta'ārof. Closer to the complexity are the sociolinguistic systems of status-marked vocabulary substitution found in Japanese, Javanese, Tongan, and Wolof. (Errington 1988; Inoue 2006; Irvine 1972; Völkel 2010). The second aspect of linguistic ta'ārof involves the use of elaborate phrases of courtesy and deference, often incorporating the aforementioned word substitutions.

The behavioral component of ta'ārof mirrors its linguistic structures as individuals strive to demonstrate that they are subservient to others in ritualized acts of courtesy and respect. This social behavior is complex, strategic, learned very early in life and practiced with regularity throughout society.

In the discussion that follows, I will first present the linguistic dimensions of ta'ārof in some detail, then the behavioral dimensions, and finish with a discussion of the underlying social dynamics that govern the use of both language and customary behavior in Iranian life.

The ta'ārof system is informal, but very elaborate. A number of researchers have written about ta'ārof. William K. and F. Minou Archer, William O. Beeman, John Andrew Boyle, Michael Hillman, Ahmad Izadi, Mohammad Jazayery, Sofia A. Koutlaki, Yahya Modaressi, Amir Mahdavi, Seyed Manoochehr Moosavi, Farzad Sharifian, Homa Babai-Shishavan, Paul Sprachman, Carmen Masoumeh Taleghani-Nikzam, and Mojdeh Yagubi all provide descriptions of different aspects of the system (Archer & Archer 1972; Babai Shishavan & Sharifian 2013; Bahmani 2004; Beeman 1976, 1977, 1986, 2001; Boyle 1952; Hanson 2008; Hillmann 1981; Izadi 2015, 2016, 2019; Izadi & Zilaie 2015; Jazayery 1970; Koutlaki 1997, 2002, 2010; Mahdavi 2012; Modarresi 2001; Moosavi 1986; Sprachman 2002; Taleghani-Nikzam 1999; Yagubi 2017).

In the balance of this article, I will examine both the formal linguistic structures of ta'ārof, and some of the standard behavioral routines that are recognized by Iranians as

constituting ta'ārof behavior. However, it should be noted from the outset that ta'ārof is not easily reduced to formulaic description. It is best described as a pragmatic performative accomplishment in society. Its successful execution is both admired and decried.

I have formulated the discussion that follows with readers in mind who may not be familiar with Persian. Because the construction of ta'ārof is so dependent on language structure, I include descriptions of basic Persian grammatical forms that will be very familiar to Persian speakers, for which I beg their patience.

2. The linguistic mechanics of Ta'ārof

Ta'ārof linguistic behavior depends on a complex repertory of linguistic tools. These include the use of substitutions for "neutral" verbs, pronouns and prepositions, and the introduction of phrases that mark social relations. Strategies of linguistic use will be discussed in the third section of this article. In this section I will outline the mechanics of these substitutions.

The essence of the language of ta'ārof is the symbolic social elevation (other-raising) of the addressee and the symbolic lowering of one's self (self-lowering). As I will show below, when this is mutually practiced, it can have positive cultural value. It can reinforce social stability and create harmonious relationships in society. However, this linguistic behavior can also be used to the advantage of the speaker to cajole and persuade. In this way ta'ārof is an essential communicational tool in Iranian social life. However, its advantages cannot be realized unless one understands its functional mechanics.

2.1 Ta'ārof and the Persian verb

Persian is a language with an enormous vocabulary. By some estimates, a literate Persian speaker should have a working vocabulary of upwards of 100,000 words. English and Persian share an interesting process of historical development. Both languages have a large vocabulary derived from other languages. English has many synonyms derived from French, Latin, Greek and other languages. Persian has an enormous admixture of Arabic, which likewise provides synonyms. Just as euphemisms in English become more polite as one moves from Anglo-Saxon vocabulary to French, Latin and Greek, with Persian, Arabic-based synonyms are employed to mark differences in formality and social status. The very term ta'ārof, derived as it is from Arabic, is emblematic of this dynamic in the Persian language.

Persian verbs are highly regular, and easy to understand. The purpose of this discussion is not to provide a full description of the Persian verb, but because the verb is so central to ta'ārof, a brief sketch of some of the major structural features of the verb follows below.

The infinitive of Persian verbs is indicated by the suffix *-an* attached to the past verb stem. Most past verb stems end in "t" or "d." Eliminating the "d" or "t" results in the present stem. For example: *xordan* "to eat," *xord-* "ate," *xor-* "eat." To these stems, personal endings are appended as Persian verb suffixes, as shown in Table 1. Persian has no gender distinction in third person pronouns or verb endings.

Table 1. Verb endings in Persian

	Singular	**Plural**
1st Person	-am	-im
2nd Person	-i	-id/-in
3rd Person	-Ø/-ad/-ast	-and

Conventionally, the prefix *mi-* is attached to the present stem to obtain the present tense. Table 2 gives the full paradigm for the present and past tense of *xordan*, "to eat." The stem and ending components have been separated to show how the verb is constructed. Note in the table below that the 2nd person plural variant *-in*, and the 3rd person plural variant *-an* are "intermediate" informal variants

Table 2. xordan "to eat"

	Present	**Past**
1st person SG.	mi-xor-am	xor-d-am
2nd person SG.	mi-xor-i	xor-d-i
3rd person SG.	mi-xor-ad	xor-d-Ø
1st person PL.	mi-xor-im	xor-d-im
2nd person PL.	mi-xor-id/in	xor-d-id/in
3rd person PL.	mi-xor-and/an	xor-d-and/an

The participle is obtained by adding the suffix *-e* to the past stem. This participle is used to construct more complex tenses using the normal personal endings and tenses of *budan*, "to be." So: *xord-e ʻam* "I have eaten," *xord-e bud-am* "I had eaten," etc.

As mentioned above, taʾārof expressions are obtained by substituting a neutral Persian verb with a paraphrastic phrase using an Arabic verbal noun with a Persian auxiliary, the most common of which are *kardan* "to do," *šodan* "to become," *dādan* "to give,' *dāštan* "to have," *budan* "to be," *farmudan* "to command," and *xᵛāstan* "to want, wish." *Farmudan* has a special status, because it can be freely substituted for the other three auxiliary verbs to indicate an especially elevated level of deference.

The verb "to give" (*dādan*) provides a good example of the functioning of the system of variation; see Table 3.

Table 3. dādan "to give"

Neutral form	Dādan
Other-raising (describing one's own action toward the other)	*taqdim kardan* (lit. to offer)
Self-lowering (describing the other's action toward one's self)	*marḥamat kardan* (lit. to do a "mercy"), *moḥabbat kardan* (lit. to do a kindness), *lotf kardan* (lit. to do a favor)

More deference can be shown by substituting *farmudan* (lit. to command) for *kardan* in the self-lowering forms, so *lotf farmudan* "to command a favor" is often used even in very routine situations as in the following, for which I supply a literal translation. My purpose in this discussion is not to provide an exhaustive list of status marked verb substitutions. Nevertheless, some common verbs and their substitutions are seen in Table 4.

Table 4. Some other-raising and self-lowering verbs in Persian

	Neutral form	Other-raising	Self-lowering
give	dādan	marhamat kardan mohabbat kardan lotf kardan	taqdim kardan
say	goftan	farmudan	ʿarz kardan
eat	xordan	meyl kardan	sarf šodan
come	āmadan	tašrif āvordan	(be) xedmat rasidan
go	raftan	tašrif bordan	(be) xedmat rasidan
be (in a location)	budan	tašrif dāštan	xedmat dāštan (dar) xedmat budan
go, come, be (highest honorific)	āmadan, raftan, budan	tašrif farmudan tašrif farmā šodan	mošarraf šodan

2.2 Ta'ārof and pronouns

Pronouns are similarly marked for status. Normal neutral pronouns in Persian are the ones in Table 5.

Table 5. Persian pronouns

	Singular	plural
1st person	man	Mā
2nd person	to	šoma
3rd person (no gender distinction)	u, vei [archaic]	ānha, išān

Some self-lowering and other-raising first and second person pronoun variants are as in Table 6.

Table 6. Other-raising and self-lowering pronominal expressions in Persian

	First Person singular	**Second Person singular**
Neutral form	Man	*to* (intimate), *šomā* (polite, formal)
Self lowering	*bandeh* (lit. bondsman), *nowkar* (lit. servant), *čāker* (lit. servant)	
Other raising		*janāb-eʿāli*, (lit. excellency) *sarkār* (used mainly in addressing women; lit. head of affairs) *ḥažerat-eʿāli* (lit. highness)

As a general principle, using a plural form in place of a singular pronoun is a simultaneous self-lowering, other-raising process. The polite, formal second person pronoun *šoma* in the chart above is also the neutral second person plural form. This is accompanied by the plural verb suffix of any associated verb attached to either the present or the past verb stem.

Using the first person plural pronoun in place of the first person singular for one's self is also other-raising. This is used with other-raising verb forms in the plural rather than the singular along with other honorifics, implying that a whole group of people subscribe to the honor being conferred. For instance, *Mā erādat dārim* (literally: "We have devotion"), when spoken by an individual, means "I am devoted (to you)."

It is also possible to elevate a third person not present by substituting the third person plural pronoun *išān* for the third person singular pronoun *u* along with a third person plural verb form. Thus, *Išan lotf farmudand* (lit. "They commanded a favor"), when spoken about an individual, means "He gave," marked for elevation of the person referred to.

Combining other-raising verbs with other-raising pronouns can provide a complete deferential expression, for example:

> Person A: *Momken ast, janāb-e-ʿĀli namak-ra lotf befarmā'id*
> "Would it be possible for your excellency to command the favor of the salt"
> The reply to such a request would be to use a self-lowering verb form:
> Person B: *Ru chašm, taqdim mikonam.*
> "Upon my eye, I offer (it) to you"

It is important to understand that in the dialog above, the floridness of the literal translation is not really what is understood semantically. A more accurate translation would be:

> Person A: Could you possibly pass the salt? (marking the addressee as superior)
> Person B: Here it is (also marking the addressee as superior)

In the third section of this discussion, I will show how these linguistic variations are used in face-to-face interaction, including the logic by which they are employed.

2.3 Ta'ārof and polite discourse

The second linguistic dimension of discourse has to do with polite and deferential general discourse. Iranian discourse routinely uses phrases that emphasize the low, dependent, or even servile status of the speaker, and the exalted status of the addressee, such as *qorbān-e šomā* (lit. "your self-sacrificer"), used as a routine departure phrase, or closing to a letter. There is no exhaustive list of these expressions. They are limited only by the imagination of the speaker. Some people are extremely skilled at this kind of discourse and provide taʿarof that rings true and sincere. Indeed, there are definitely people to whom this kind of language is due, such as revered teachers, parents, intellectuals, and leaders. Speakers who use ta'ārof for the purpose of honoring worthy people are engaging in admirable behavior. Others are clearly using this language to flatter or deceive. The ambiguity in this language is part of its charm, contributing a distinct flavor to Iranian interaction. I will return to this in the third section of this discussion.

Polite ta'ārof discourse utilizes the verbal and pronominal variation tools detailed above but adds a rich repertory of phrases designed to accomplish the social task of making the other person feel elevated and at the same time showing the speaker to be inferior. Using words that characterize one's self as a servant, a slave or a devotee are common in ordinary speech.

Perhaps the most common phrase in this vein is the word *qorbān*, which translates literally as "sacrifice" or "martyr" in religious contexts. The most common closing for conversations, letters and other everyday discourse is, as mentioned above, *qorbān-e šoma* "I am your sacrifice." It is also used to address others.

Qorbān, tašrif mibarid? (lit. "You for whom I am a sacrifice, are you taking your presence?"; translated "Sir, are you going?"). Culturally, *qorbān* may be a reference to the ultimate Shi'a Muslim martyr, Imam Hossein, grandson of the Prophet Mohammad, whose tragic death on the plains of Karbala in present day Iraq is the major religious event in Shi'ism.

Examples of other phrases that indicate status difference are:

Mā nowkar-im ("We are [your] servant")
Mā kuchek-e šomā hastim – (lit. "We are [I am] your inferior")
Qābel nadārad ("It is not worthy [of me])" when offered something
As lotf-e šomā ("from [by] your favor") when receiving a compliment or praise

Phrases like these have many variations, and improvisation in the spirit of fun can often be seen by people trying to outdo each other in self-lowering. One common phrase

Mā xāk sir-e pā-ye šoma ("We are [I am] the dust under your feet")

gets humorously rendered in phrases like:

Mā ādams dar kaf-e kafsh-e šoma hastim ("We are [I am] the chewing gum on the sole of your shoe")
Mā tof-e dehan-e šoma hastim ("We are [I am] the sputum from your mouth")

The following dialog may provide the flavor of an extended conversation using ta'ārof expressions.

A: *Jenāb-e Agha-ye Rashidi*! ("Honorable Mr. Rashidi!")
B: *Befarmā'id Qorbān*! ("Command [me], Sir [for whom I would be a sacrifice]")
A: *Lotf dārid. Momken ast, az jenāb-e ʿĀli yek xʸāhesh dāšteh bāshim?* ("You have [do] a favor. Is it possible for us [me] to possibly make a request?")
B: *Amr befarmā-id* ("Command an order [of me]")
A: *Mā čāker-e jenāb-e ʿāli hastim, qorbān* ("We are [I am your servant], Sir [for whom I would be a sacrifice]")

Translated this dialog would be understood in roughly the following way, only marked for other-raising and self-lowering using ta'ārof expressions in verbs, pronouns and polite phrases:

A: Mr. Rashidi?
B: Yes, hello. What can I do for you?
A: Thank you. Could I make a request?
B: Certainly, what is it?
A: Thank you. I appreciate it.

2.4 Befarmā'id

The expression *befarmā'id*, the second person plural imperative form of *farmudan* "to command," as seen in the dialog above, is an all-purpose expression for deference in Iran, as will be seen below. Note that this expression is used to address both a single individual and more than one person, since the second person plural verb form is the polite form of reference.

Forms of *farmudan* can be substituted for any auxiliary verb in ta'ārof expressions, as shown above. But *befarmā'id* can be roughly translated as "Please" in an exhortation to carry out an action, to accept something from another, to say something. It can be followed by virtually any word in the language as an offer for an individual to avail themselves of whatever is being offered – a position, an object, an expression, a privilege, etc. It is often interpreted as an invitation. The implication, however, is that the person being addressed is actually issuing a command to the speaker, so that the speaker is not initiating the action.

Befarmā'id čāi ("Please have some tea, please join us for some tea, please let me invite you to have some tea")
Befarmā'id jelou ("Please go ahead")
Befarmā'id bešinid (Please sit")
Befarmā'id šab bemānid ("Please stay the night")

Literally these expressions are calling for the addressee to command tea, going forward, being seated, or spending the night, so that these offers are not at the initiative of the speaker, but rather of the addressee.

A slightly less formal form of this expression is *befarmā'in.* The second person singular form, *befarmā* is used by persons who are in a very intimate relationship in private settings. However, it can also be used as an insult. If it is used in public with non-intimate individuals, because it can be seen as one of the rare instances of other-lowering in social life. In rough speech it can have the connotation of the raised middle finger in American life.

3. Behavioral ta'ārof

The second area of taʿārof has to do with social gestures that provide courtesy and hospitality to others. Simple gestures such as allowing another person to go first through a doorway or seating someone in a place of honor are common examples of everyday taʿārof. However, taʿārof can be much more elaborate. Extravagant offers of service or hospitality are labeled as taʿārof in everyday discourse. Similarly refusing hospitality or favors is labeled as taʿārof. When a generous gesture is offered and the recipient demurs, he or she is often told "please don't do taʿārof."

It is important to note that rules for social behavior are different between clear status equals who share a relationship of relative intimacy, and who encounter each other in private spaces. This is an area of life where ta'ārof may not be appropriate. Young friends in intimate situations may be seen to use quite "rough" language with each other, and would interpret highly formal ta'ārof expressions as either a sign of discomfort, remonstrance, or humor. Although the realm of ta'ārof is largely seen in public situations among persons who are not social intimates, routine ta'ārof actions will always be seen as appropriate (Izadi 2016, 2019; Izadi & Zilaie 2015). I will elaborate on this in the next section of this discussion.

Ta'ārof actions in public life between non-intimates are universal in Iranian culture, whatever the religious, ethnic or linguistic community of the participants. Laurence Loeb (1969) provides examples for the Iranian Jewish community. His observations apply equally to Zoroastrian and Christian communities. Azari Turks, Kurds, Baluchis, and tribal peoples are equally famous for their hospitality and use

of taʿarof in their own languages, though they may lack the elaborate vocabulary for "other-raising" and "self-lowering" found in Persian.

Although ta'ārof is routinely seen in everyday interaction at all times and all places, there are some areas of behavior that are especially notable and apparent. I will detail these below: The overall logic of this behavior is for individuals to place themselves in a lower status position than others.

3.1 Deference in physical movement and comportment

Individuals in Iran will automatically defer to others in physical movement, especially those with whom they have some existing or possible social connection. Going through doors, entering a room, allowing others to go first in a line (such as a food buffet), allowing others to sit before one's self. Bodily carriage is likewise expected to demonstrate deference. Hands folded in front of one's self, eyes cast down, and upright posture are signs of ta'ārof physical carriage. Not sitting in the presence of others is also a sign of deference. In general, one can defer to another by not allowing them to move. The person expressing ta'ārof brings everything to the person to whom deference is being shown.

3.2 Seating

Particular care is taken in seating. The general rule in Iran is that the highest status person in a group should be seated farthest from the door of a room. Especially in a traditional room where everyone is seated on a carpet with cushions, this means that the highest status person is the one who moves the least during a social occasion. Everything is passed to this person by others seated nearest the door. At a gathering the young persons in a family and women or servants in traditional households occupy the position near the door and bring food and drink from the kitchen to the room.

This creates an interesting situation for guests arriving at different times to a social gathering. Since no one may know who is arriving, only the most clueless person arriving early would proceed to the head of the room farthest from the door. Such a person would be seen as either rude or ignorant. The most reasonable action is to seat one's self nearest the door, or perhaps somewhere in the middle of the room. Then as people arrive, the early guests can adjust their positions closer or farther from the door.

The ta'ārof expression that indicates deference to another person is: *befarmā'id bālā* "please sit at the top [of the room]." As guests gather, this expression will be repeated over and over. A guest to whom this is addressed will defer, and eventually must often be physically led to a higher position in the room.

3.3 Greeting

The lower status person initiates a greeting in Iran. This is sometimes referred to as the "right of the first salaam" referring to the standard greeting in the Islamic world:

salām aleikum "Peace be upon you." Non-Iranians are often surprised at being greeted by people they don't know on the street. Americans used to panhandlers sometimes become suspicious at this, but in fact, it is a sign of respect. In one legendary 19th century court story, the Shah wished to reward a courtier for a service and asked him what he wished. The courtier replied "I only wish the right of the first *salām*," indicating that the courtier was claiming perpetual inferiority vis-à-vis the Shah. The Shah was greatly pleased and rewarded the courtier with a substantial sum of money.

Taleghani-Nikzam reports on Iranian telephone conversations, which consist of many inquiries about the health of the other person before any content is approached. Being the one to make health inquiries places one in the subordinate role. In a normal conversation these health inquiries can go back and forth many times. One can one-up the questioner and "get the lower hand" by invoking *qorbān-e šomā* "I am your sacrifice," as in the following conversation between friends using informal speech.

A: *hāle šomā?* ("your condition?")
B: *hāle šomā četore* ("How is your condition?")
A: *xubin?* ("are you well?")
B: *hāletoon xube?* ("Is your condition good?")
A: *xeili mamnun* ("Thank you very much")
B: *xubin?* ("Are you good [well]?")
A: *qorbān-e šomā* ("I am your sacrifice")

(Taleghani-Nikzam 1999: 92)

3.4 Accepting things

In general, a transfer of goods, services or presents passes from the lower status person to the higher status person and not in the other direction. For this reason, it is good form to refuse to accept anything from another person. The canonical formula is to refuse at least three times, but in practice it might be once or many times. The point is to show reticence to accept anything when first offered. It is sometimes surprising for non-Iranians to have a merchant or taxi driver seemingly refuse to be paid his or her fare (yes, there are female taxi drivers in Iran). The person being paid uses the formula *qābel nadarad* ("It is [I am] not deserving"). The person paying must then insist before finally successfully getting the person to accept.

Immediately after the departure of the Shah of Iran into exile in 1979 during the Iranian Revolution people were occasionally surprised to experience taxi drivers who would not accept payment no matter how many times the passenger insisted. This was seen as a gesture of revolutionary solidarity on the part of the drivers. The gesture was short-lived, but people still remark on this short period of ta'ārof exercise.

No one should ever consume anything in a social setting before offering it to others. This was illustrated to me when I was a guest at a family gathering. The grandfather of the family gave his four-year-old grandson a piece of candy. The boy systematically

went around the room offering the candy to every guest before he allowed himself to eat it. Of course, every guest refused this well-mannered child politely.

3.5 Guests and hosts

By definition, a guest is someone who is not within the intimate circle of the family. A guest is automatically in a superior position, and though bringing a present such as flowers or sweets to a dinner party is expected, the host may make a show of refusing or expressing unworthiness. As a guest, one cannot gracefully refuse anything that is offered, such as tea or sweets. The proper etiquette is to take anything that is offered, and simply leave it on a plate if one doesn't wish to consume it. This kind of protocol gradually relaxes as people become friendlier over time, but it is never completely abandoned. Yagubi presents many situations illustrated in Iranian films where even people portrayed as good friends will make ritual gestures of refusal when offered something as minimal as a cup of tea (Yagubi 2017: 174–176)

Because guests are always seen culturally as superior, it can sometimes seem that Iranians vie furiously to obtain them. American tourists in Iran are astonished and overwhelmed by the number of invitations they receive from people they have known for only a few minutes. They don't understand how important and satisfying their presence as guests is for their hosts.

Of course, most invitations are ritual in nature and never brought to fruition, as they can be in the United States ("Let's have lunch sometime") but those that somehow are accepted can be occasions of great happiness for their Iranian hosts. Hanson also recounts the well-intended compulsion for hosts to press food on their guests (Hanson 2008). It should be noted, however, that invitations may be seen as opportunistic. Accepting an invitation incurs an implied obligation on the part of the guest. Inviting a foreign guest may involve a calculation on the part of the host that some benefit may result from the invitation.

Two incidents may serve to illustrate. In a restaurant I encountered a group of Iranians who had a German guest. On inquiry I found that the guest was the brother of the bride of one of the relatives of the family who had come for the wedding. I speak both German and Persian, so I was translating. The German guest told me how thrilled and happy he was with the overwhelming hospitality of his hosts over several days. But asking the Iranians, they told me that they thought he was really a "jerk" because he never reciprocated or tried to pay for anything.

In the second incident, I was doing fieldwork in Northeastern Iran with a team. We tried to limit our visits to avoid mealtimes. But as we were leaving one village, a young boy came and told us that his father insisted that we come home with him for dinner. We made all kinds of excuses, but he wouldn't be deterred. Finally, we tried to drive away and he threw himself on the hood of our car. Shocked, we stopped

and asked him what he was thinking doing something so dangerous. He started to cry and said, "If you don't come to dinner, my father will beat me. He will say that I wasn't man enough to bring guests home with me." Of course, we relented and had a lovely evening.

Restaurants are the site of many struggles among Iranians who try with some ferocity to be the host for the meal. On many occasions, one diner will pretend to go out for some reason, to "wash hands" or make a phone call. In reality, they go to the proprietor and secretly pay the entire bill. The artful way to do this is for the person who has paid to then leave before the others so that he or she is not even present when the proprietor informs the other diners that the bill has been paid. This practice continues even among expatriate Iranians. Behrooz Bahmani recounts the following event when one of his friends, Behzad, secretly pays for him and his lunch companion, Fardad, in Los Angeles.

> Fardad's mouth suddenly fell open. Agape. I was wiping the last few slurps of diet coke from my mouth when I looked up and saw the look of horror on his face. Fardad is always a synapse or two quicker than me, and at first I wasn't sure what happened, until it suddenly hit me. My mouth fell open. Agape.
>
> "Holy shit! I bet he paid for our lunches!" he said.
>
> "No Way!" I said, knowing it was only true.
>
> The waitress returned with the tea, a growing sly smile on her face, as she must have seen both our mouths. Agape. Fardad was closer and took a shot anyway, knowing it was pointless, "Can you also bring the bill when you get a chance," he said.
>
> "No need, your friend has already taken care of it," she said, full on smiling now.
>
> "Ah Shit!" Fardad said, smiling now.
>
> "That Bastard!" I said, laughing "Agha, don't worry, I swear I will track him down, find him, and we will buy him such a lunch, even if it kills me."
>
> "You'd better. Or I will kill you!" Fardad said, biting his lower lip.
>
> So run Behzad run. Because even if you don't stop running, which you will, we will catch up with you, and when we do, you'll pay for your move, with a lot more than a measly joojehkabab. You may have bested the two of us with your mighty and masterful move, clearly you are a Pahlavan worthy of our salute and respect. But know this, we will find you and repay your kindness, with a kind of kindness you can only dream of. You will come to fear our kindness the next time we meet! And it will be soon!
>
> (Bahmani 2004)

4. Using Ta'arof in pragmatic interaction

Ta'ārof has sometimes been described as "a social lubricant." This makes it much more than an exercise in ritual politeness. It can be used for many pragmatic social purposes.

Many researchers have noted this in fascinating studies that highlight the ways that ta'ārof can be functional in pragmatic interaction. I consider some uses below.

4.1 Expressing disapproval

Although ta'ārof generally is seen as language and behavior that is designed to flatter others and make them feel good, ta'ārof can be used to show disapproval without being accused of being impolite. A rather dramatic example can be seen with beggars in large cities. Many people regularly give small amounts of money to beggars as a matter of course, but if they resist, the beggar may respond with:

> *Do'ā mikonam ke en sha' Allah jenāb-e Āli mariz našavid.* ("I pray that your excellency will, God willing, not become sick.")

In the family, a mother may not feel comfortable complaining about her husband or her male children. But she can show her disapproval by using overly polite language. In the example below a mother is angry at her son for arriving home late. She addresses him thus:

> *Xeili bebaxšid, nafahmidam, jenāb-e āli kei tšrif āvardand. Al'an shām-rā meyl mifarmā'id?* ("Oh, excuse me, I didn't notice, has his honor favored us with his presence? Will you now condescend to dine?")

The son clearly understands the remonstrance and replies in very familiar language

> *Mano bebaxš, Dir kardam, hanuz ghazā hast?* ("Sorry I'm late, is there any food left?")

4.2 Face-saving

There are many aspects of face and face-saving in Iranian life, often tied up with ideas of honor. Koutlaki, Izadi, Yagub and others point out the extreme importance of maintaining face, both one's own and others. The concept of *rudarbāyesti* "reputation" is central to this operation. The word *ru* "face" is especially important metaphorically, since it is seen as a "container" in which honor and reputation can be "filled," and equally from which honor and reputation can "spill."

Koutlaki (1997, 2010), Izadi (2015), Izadi & Zilaie (2015), Babai-Shishavan and Sharifian (2013), and Yagubi (2017) suggest that the case I have mentioned above, in which a taxi driver or shopkeeper makes an "ostensible" refusal to accept payment shows an enhancement of the face of both the shopkeeper and the customer. The shopkeeper shows generosity and consideration, and at the same time elevates the customer by suggesting that the shopkeeper is not worthy to accept payment (styling it as a kind of reward) from a person of such elevated status.

4.3 Overpraise as defense of reputation

Izadi, in several examples of professional discourse set in a university shows how the use of "overpoliteness" can be used as a mask for negative evaluations and statements. In engaging in ta'ārof in a highly deliberate fashion, an individual who may be in an inferior, or precarious position, may still remonstrate with his or her clear hierarchical superiors without overstepping the bounds of propriety.

In a poignant example, Izadi (2015) cites the case of a female faculty member who is reluctant to criticize the student of an older colleague in a Ph.D. exam, which professionally she should feel free to do, but which she is nonetheless hesitant to engage in, despite the urging of her colleagues not to engage in ta'ārof. She resorts to overpoliteness to express herself, thus skillfully accomplishing her purpose without giving offense (Izadi 2016: 22).

4.4 Actual refusal

Ta'ārof can also clearly be used to actually refuse something that one does not want for various reasons. An unanticipated visit (for which hospitality is required), gift, or service can be genuinely inconvenient or unwelcome. A person may make the mistake of admiring something owned by another person, which would prompt the owner to offer it as a gift. The admiration of the item is a very bad social mistake and is embarrassing (non-Iranians, beware!). The only cure is to engage in extensive ta'ārof expressions to be able to politely refuse. Similarly, one may inadvertently imply that some service or favor is needed, only to be embarrassed by an overly enthusiastic response, sometimes with the expectation that the person doing the favor would then be generously compensated. Extricating oneself from these kinds of tricky interactions requires a great deal of skill in the use of ta'ārof. Sometimes it is impossible to escape, and the easiest course is just to accept the gift or the favor and reciprocate later.

Early in carrying out fieldwork in Iran I was living in a remote village. My neighbors were exceptionally kind to me, and I was always as careful as I could be to make sure I was not a burden to them. They worried about my marital state continually. One day I was alone in my room, and a lovely young girl appeared at my door without a *hijab*. She lingered for a few minutes, and then disappeared. Since this was a very conservative village, this event was exceptionally odd, until it occurred to me that my kind neighbors were suggesting that she might be a suitable bride for me. I went into a panic. Following this encounter, I had hint after hint that "there were beautiful eligible girls" who "needed husbands." And any man who wanted to marry such a girl would immediately be provided a dowry and a house. Of course, I then knew what was going on. I deflected and deferred to no avail. The hints continued every day. Finally I invited a few of the elders to dinner and during the course of the meal, I told them: "I would be honored to stay with you forever, and if God wills, perhaps even have a family, though

I have not been worthy of your kindness. But my mother and father have found a bride for me, and I must sadly leave you." It was a terrible lie, but my friends congratulated me with some visible sadness and spoke no more of my surreptitious "visit." I learned later that the girl who came to my door was the daughter of one of the wealthy merchants in town, whom I knew, and I was relieved to learn that she later married her own cousin.

5. Understanding the logic of Ta'ārof

In this section of the discussion I will try to explain why ta'ārof is practiced in Iran by showing how it fulfills basic cultural functions in regulating social life.

There are two dimensions that dominate Iranian life. The first is the hierarchical contrast between "high" and "low." As I have pointed out thus far in this discussion, Iran is a starkly hierarchical society, and social hierarchy is marked linguistically in a characteristically Iranian fashion by using vocabulary that emphasizes the higher status of the other person, while denigrating one's own status. As I have shown, many common Persian verbs have corresponding "other-raising" and "self-lowering" forms.

The second dimension that dominates Iranian life is the distinction between "inside" and "outside." The "inside" is highly valued and can be considered to be sacred. The outside is appreciated, because it is the realm in which most of life must be conducted, but it is not highly valued. It can be considered to be "secular." I will discuss this second dimension below.

5.1 Hierarchy and strategies of Ta'ārof

In the second section of this discussion, I have tried to show how the behavioral component of ta'ārof mirrors its linguistic structures as individuals strive to demonstrate that they are subservient to others in ritualized acts of courtesy and respect. This social behavior is elaborate, learned very early in life and practiced with regularity throughout society.

I don't wish to imply that these linguistic and behavioral structures are unique to Iran. The dynamics of deferential language and polite behavior embodied in taʿārof are widespread in the cultures of the world. I have already mentioned several of these societies at the beginning of this discussion. These include Japan (Inoue 2006; Seward 1969), Indonesia (Errington 1988), Senegal (Irvine 1972), and Tonga (Völkel 2010), among others. However, although many societies mark status differences linguistically, Iran does this using unique strategies in the use of ta'ārof to accomplish personal and social interests. If Iran is to be differentiated from other societies that mark hierarchy, it is in the extensive use of taʿārof as a social strategy.

Much taʿārof is utterly sincere – being directed toward persons who are truly worthy of admiration. However, it is possible by "getting the lower hand" as a behavioral and rhetorical strategy to compel others to acquiesce to one's wishes. Essentially, one uses this strategy to invoke "noblesse oblige" in the other person, making it difficult for them to refuse requests.

Hierarchical positions in Iran are especially difficult for people with high status or authority, because they are responsible for those who are subordinate to them. At the same time, they are dependent on their subordinates for support to maintain their position. Subordinates regularly sabotage the positions of those who do not care for them. So a high status person must regularly reward subordinates, even as he or she gives them orders and demands service and even tribute offerings.

Since hospitality and generosity are deeply ingrained in Iranian society, it is often difficult to discern genuine from insincere offers. Sometimes it is a win-win situation. If the recipient accepts a compliment, gift or other gesture, the giver feels pride. If the recipient succeeds in refusing, the giver feels happy that he or she made the gesture. As in the restaurant scenario presented above, taʿārof can verge on aggressive behavior as participants try to outdo each other in their generosity. Needless to say, taʿarof is an important social lubricant in Iran, and when everyone is practicing it, social life can be pleasant, and discord can be suppressed under a veil of politesse.

The linguistic paradigms of ta'ārof can be shown as in Figure 1. Neutral words are at the center of the diagram. Other-raising forms are high and to the right. Self-lowering forms are low and to the left. This diagram shows the variation for *dādan*, "to give."

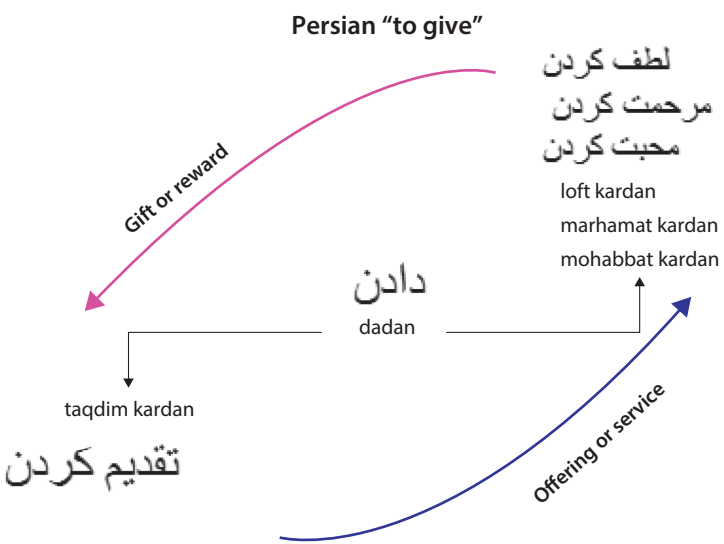

Figure 1. Hierarchical levels for dādan "to give" in Persian

In this diagram, the ta'ārof other-raising variations for *dādan* imply an offering of service (*taqdim*). The self-lowering phrases imply that the addressee is providing a gift or a reward, fulfilling the social requirements of noblesse oblige incumbent on the higher status person. All ta'ārof expressions can be accommodated in this diagram. (See Beeman 1986 for many more examples).

This kind of linguistic expression in discourse is highly functional. Because Iran is so heavily oriented toward hierarchical differentiation, relations of equality are very difficult to create and sustain. Ta'ārof, when it is practiced by both parties, solves the problem of stable social equality. When all parties practice ta'ārof, their actions create hierarchical stability. Both individuals are practicing other-raising and self-lowering simultaneously, and therefore neither is asserting superiority over the other person. Figure 2 illustrates this balanced reciprocity.

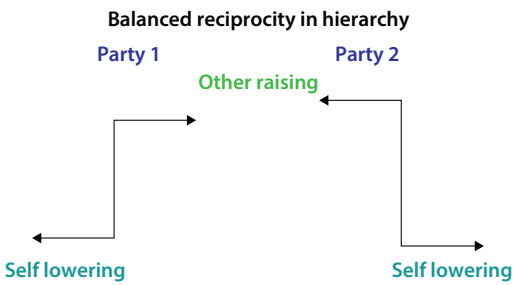

Figure 2. Balanced Reciprocity in Hierarchy

If one person is able to successfully put him or herself in a self-lowering position and convince the other person that he or she is truly superior, this provides an advantage, since the person successfully claiming the lower status can invoke the social obligation of the higher status person to provide support.

5.2 Inside and outside

The contrast between inside and outside in Iranian culture is equally potent. Inside physical and conceptual spaces are called the *andarun* or the *bāten*. Outside spaces are the *birun* or the *zāher.* The inside/*andarun/bāten* is the seat of the individual's spiritual core. It is the seat of sincerity and true inner feeling. It is also the interior of the home where intimate family life takes place. The outside/*birun/zāher* is the world of public space and also the world of materialism and secularism. The realm of ta'ārof is in the area of the outside. As situations are seen as more outside/*birun/zāher*, the use of ta'ārof increases dramatically.

The two dimensions can be seen as existing on a continuum as illustrated in Figure 3.

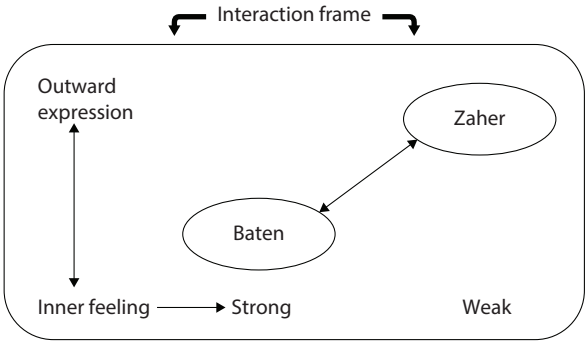

Figure 3. "Inside" (bāten) and "outside" (zāher) in Persian

In outside/*birun/zāher* situations, failure to use ta'ārof is a social error. A person who does not show linguistic and behavioral deference to others may be labeled as *por-ru* (audacious, cheeky). A single mistake can create serious problems for an individual.

In inside/*andarun/bāten* situations, ta'ārof is out of place. If it is used, it can be seen as a remonstration, sarcasm or an insult. See the following example:

Mother:	*Kojā budi? Dir-e.* ("Where were you? It's late.")
Son:	*Be to če. Birun. Šām ku?* ("None of your business. Out. Where's dinner?")
Mother:	*Xeili bebaxšid, nafahmidam jenāb-e 'āli kei tašrif āvārdand. Al'ān šam-rā meyl mifarmā'id?* (roughly, "Oh, excuse me, I didn't notice when his honor favored us with his presence. Will you now condescend to dine?")
Son:	*Xub, mano bebaxš. Dir kardam, hanuz ghazā hast*? ("OK, sorry I'm late, is there any food left?")

The dialog above starts with the plainest possible language. When the son insults his mother, she replies with full-on ta'ārof, which the son immediately understands as a remonstrance. He apologizes and life returns to normal.

6. Conclusion

Ta'ārof is indeed a complex linguistic and behavioral system. There has been much speculation as to how and why it arose in Iran. Political and social uncertainty in Iran over many centuries may have resulted in the ta'ārof system having evolved as a defense mechanism for individuals. Getting the lower hand is an almost perfect defense against blame. If a person makes an error and is blamed by another person, the individual making the error can always claim inability and inferiority as compared to the person issuing the blame. In the Iranian court, one could be in serious trouble for a single error in courtesy or behavior. Ta'ārof is both protection and a guarantee of harmony.

Visitors to Iran have commented on the obsequiousness they witnessed in Iranian society, but they were puzzled that the same person could be "fawning" in one situation and imperious in another. When one understands that hierarchy is relative, this is no mystery. Everyone in Iran is superior to some people and inferior to others. Moreover, being superior is not very comfortable. Many high-ranking people have been toppled from their positions through secret machinations by disgruntled underlings, who continue to smile and use ta'ārof even as they carry out their sabotage.

Learning to master ta'ārof is one of the most important social skills any Iranian can achieve. It is functional, it makes life pleasant, and it allows one to achieve goals in life. As a footnote, it was thought that after the Revolution of 1978–79 which toppled Shah Mohammad Reza Pahlavi, ta'ārof would disappear. Decades later, it is as robust as it ever was, even among Iran's youngest citizens, showing how important and functional it remains for Iranian life.

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Transience

Hartmut Haberland & Janus Mortensen
Roskilde University / University of Copenhagen

1. Introduction

Much of the work that has been carried out in pragmatics, sociolinguistics and related fields has traditionally focused on sedentary and relatively stable social configurations in which social interaction is assumed to proceed on the basis of shared social and linguistic norms. Recently, however, research concerned with mobility and movement has increasingly come to the fore within sociolinguistics and linguistic anthropology (see e.g. Blommaert 2016; Pennycook 2016; Park 2019), and scholars interested in social settings characterized by transience have begun to explore contexts where the existence of sedimented social and linguistic norms cannot be assumed to be in place *a priori*, but must be explored as an emergent phenomenon developing *in situ* over time as a joint effort of the participants, in an interplay with the wider social context. Research interested in transient social communities, defined as "social configurations where people from diverse sociocultural and linguistic backgrounds come together (physically or otherwise) for a limited period of time around a shared activity" (Mortensen & Hazel 2017: 256), serve to complexify the object of analysis within the study of language and social life. Many established theoretical constructs in pragmatics and sociolinguistics can be seen as products of past needs to construct stable models of unstable phenomena. A focus on transience challenges this need for stability and opens new avenues of research at the interface of pragmatics, sociolinguistics and linguistic anthropology.

2. Disciplinary triage

In the early 20th century, the study of language struggled with the problem of determining what the object of linguistics actually was. A classic instance of a language scholar's reaction to the need to provide a stable model of an unstable phenomenon is the following example discussed by Bloomfield:

> A needy stranger at the door says *I'm hungry*. A child who has eaten and merely wants to put off going to bed says *I'm hungry*. Linguistics considers only those vocal features

https://doi.org/10.1075/hop.22.tra1

> [i.e. forms] which are alike in the two utterances, and only those stimulus-reaction features [i.e. meanings] which are alike in the two utterances.
>
> (Bloomfield 1926: 154, italics in the original, our glosses in square brackets)

By today's standards, this represents an extreme case of reductionism in defining the object of study for anyone interested in language as part of social life. Yet, it was probably in many ways *necessary* for Bloomfield and his contemporaries to pursue this kind of reductionism in order to capture an object of study that could be described *at all*. The world's complexity has not necessarily grown since Bloomfield formulated his 'postulates for the science of language' in 1926, but our appetite not to reduce it has.

As Celia Roberts (2017) has pointed out, we may think of this as part of a continual historical process of disciplinary *triage*. Triage is a metaphor taken from the practical and ethical dilemma of doctors in the trenches: who is to be treated first? Two important factors to consider in answering this question is: what *has* to be done first and what *can* be done first. A similar process has arguably been at play in the study of language in social life where research questions and research priorities have changed over the years. As questions have been answered or considered sufficiently treated, new questions have arisen, often accompanied by theoretical as well as technological advances which have enabled scholars to develop new methods and new ways of seeing the world.

The interest in transience represents one such recent development. Just like mobility, transience is not a new empirical phenomenon, but it is not until recently that transience has emerged as a research object in its own right. This is in many ways not surprising. Even though transience is arguably a far more fundamental and pervasive aspect of human experience than might be assumed at first sight, it is perhaps understandable that sociolinguists and likeminded scholars have started out looking at presumably more stable contexts in their attempt to understand the role of language in social life. After all, objects that are imagined to be stable and homogeneous, such as well-defined speech communities coincident with the boundaries of nation-states, are in some ways easier to describe systematically than more ephemeral social configurations characterized by social and linguistic heterogeneity. In the early days of sociolinguistic and pragmatic research, there might also have been a sense that stable communities constituted the most *relevant* object of study, and therefore the object that needed to be tended to first. This priority mirrors the focus traditionally awarded to 'thick' as opposed to 'light' communities, as Blommaert (2018) calls them, in social theory.

Technological and methodological advances have also played a role in enabling scholars to develop research into contexts characterized by transience. Audio and video-recording have been applied in sociolinguistics for a long time, but routine access to the technology needed to study naturally occurring social interaction in transient social configurations, such as portable and relatively unobtrusive audio and (especially) videorecorders, linking software and other types of computer-assisted

qualitative data analysis software (Mortensen & Hazel 2012; Haberland & Mortensen 2016), has only recently become part of the mainstream and utilized in the development of new or renewed methodological frameworks such as linguistic ethnography (see e.g. Tusting 2019; Copland & Creese 2015).

The important point to make here is that a focus on transience does not so much allow us to identify new aspects of social reality as it allows us to see old phenomena in a new light. As Reyes (2014) has pointed out, "as we move about the world, we may not see new things as much as see things anew–which is certainly something but an entirely different something" (2014: 367). Moreover, the recent interest in transience amongst sociolinguists may represent yet another case of sociolinguistics being a little 'late getting to the party' (cf. Coupland 2003) compared to scholars from other fields, including sociology, anthropology and human geography. Although transience may not be a mainstream topic in social theory, it has in fact been identified and discussed as a salient feature of late modernity for at least 20 years, for instance in relation to transient workers in the tourism industry, from Hawai'i to Scandinavia (Adler & Adler 1999; Thulemark 2017; Underthun & Jordhus-Lier 2018), transient 'portable' communities that form around shared interests in bluegrass music in the American Midwest (Gardner 2004) transient or 'light' communities emerging in various modes of public transport from the Victorian railway (De Sapio 2013) to 'tram 12 in the city of Antwerp' (Soenen 2006; cf. Nash 1975), transnational students in Auckland (Collins 2012), and 'global nomads' living lives of 'location independence' (Kannisto 2016).

3. Transience and the study of language and social life

Although it is only fairly recently that transience has begun to attract the attention of sociolinguists as an empirical phenomenon and theoretical concept of concern in its own right, several studies have in fact been reported in the literature that speak to the notion of transience, either directly or indirectly. In this section, we review some of the main issues and topics that have been addressed so far.

In a study of women's neighborhood meetings in a transient urban setting in Indonesia, Goebel (2010a) discusses how processes of social interaction unfold in a multilingual setting where "rules for conduct cannot be taken for granted, because participants do not share the same trajectories of socialization" (2010a: 223). Drawing on Agha's (2007) notion of 'semiotic registers', Goebel is able to show how the neighborhood meetings constitute a social setting with a *plurality* of emerging semiotic registers, and how a relative newcomer to the setting gradually comes to align with the dominant in-group register, adopting but also adding to the shared semiotic resources of the group. As Goebel notes, we can see this process as a case of language socialization (cf. Ochs 1988; Wortham 2005), but because the social setting is characterized

by diversity and transience and relatively fleeting social relationships, the process of socialization is dialectic: The newcomer is not simply assimilating to the communicative and behavioral norms of the group, she is also affecting them in the process.

Several other studies have discussed similar cases of how transient social settings often involve processes of reciprocal or 'mutual' socialization. In an ethnographic case study conducted at the Danish headquarters of a multinational company, Lønsmann (2017) shows how members of an HR team experienced the addition of a transnationally mobile, English-speaking colleague to the team. The new composition of the team resulted in an ongoing re-negotiation of the norms of language choice in the group (Danish vs English), and Lønsmann argues that while the newcomer was strategically – and quite effectively – positioned as "a catalyst for increased use of English and for the creation of a 'global mindset'" she was at the same time also "socialized into the existing Danish egalitarian workplace culture" (2017: 326).

Similarly, Mortensen (2014) shows how the norms of language choice in three student project groups at an international study programme at a Danish university have developed locally within the context of the groups. English is the dominant language in all groups, but it co-exists with Danish as the local language, resulting in the emergence of what might be considered a 'bilingual medium' (Gafaranga & Torras 2001) in which the members do not on all occasions orient to Danish and English as separate codes (see Chapter 4 in Goebel 2010b for a detailed discussion of this phenomenon in relation to his study of Indonesian neighborhood talk). The interactional practices displayed by the members constitute an emergent form of social and moral order particular to each group, coterminous with its existence.

The discussion above points to an important if slight difference between what has been called transient communities (Mortensen & Fabricius 2014; Mortensen 2017) and the more well-established notion of communities of practice (Lave & Wenger 1991). A community of practice (CofP) can be defined as an "aggregate of people who come together around mutual engagement in an endeavor" (1992: 464), drawing on 'a shared repertoire' of resources (Wenger 1998: 82ff). Although Wenger (1998) stresses that this shared repertoire is an emergent phenomenon, *sharedness* of resources, including linguistic resources, is nevertheless often seen as a defining feature of community of practice, just like shared norms were seen as a precondition for the existence of a speech community in the early days of sociolinguistics (cf. discussion in Rampton 2010; Jacquemet 2019). In transient communities, this form of sharedness cannot be assumed to be in place from the outset, though it may very well emerge as a result of the interaction.

Studies on communicative practices in operating theatres in Australia and England (Gillespie et al. 2013; Bezemer et al. 2016) offer fascinating insights into problems associated with a lack of shared resources in workplaces characterized by transience. In describing their field site, an operating theatre in a major hospital in

London, Bezemer and colleagues explain that "up until about 15 years ago, surgeons in this site often worked with the same group of nurses for decades, during which time they accumulated a significant body of knowledge about how colleagues work" but "they now step in and out of newly formed, transient teams as they move from one operating list to the next and frequently work with people they have not met before" (Bezemer et al. 2016: 362). In such situations, the difference between a community of practice and a transient community becomes obvious. Even though the participants have all had professional training and all speak 'the same' language (English), a shared set of resources – linguistic and otherwise – cannot be taken for granted. In fact, the lack of shared words for surgical instruments and processes related to the surgery at hand result in communicative challenges that the participants need to resolve in order to carry out their joint tasks. So, even though teams in operating theatres might be assumed to constitute textbook examples of communities of practice (and may well have been in the past), their status as such cannot be taken for granted. Instead, they may productively be studied as a way to explore how shared social and communicative practices develop under conditions of transience (see also King 2014).

The examples discussed by Bezemer et al. illustrate communicative problems that may arise in transient settings because participants do not share denotational meanings of words, and how such problems can be overcome by speakers developing locally shared meanings. Similarly, in a rather different social setting, Pitzl (2018) shows how 'a transient international group (TIG)' consisting of four recent acquaintances in Malta gradually, over the course of three conversations, develop shared lexical norms. The participants draw on English as their dominant lingua franca but crucially also enlist additional resources from what Pitzl calls their shared 'multilingual resource pool' (2018: 32). As Pitzl points out, the method she employs is not limited to studies of how shared lexical repertoires develop. Indeed, in many transient settings, norms at all levels of linguistic description are in principle less fixed than in more stable social configurations. This means that studying transient social groups allows researchers to explore processes of 'semiotic sedimentation' not only at the level of denotational meaning, but also at 'higher orders of indexical meaning' (Mortensen 2017: 275, cf. Jaffe's (2016) notion of indexicalisation). This could entail the development of shared pragmatic norms related to politeness, e.g. norms for what it means to be late in a refugee language classroom setting (JHazel & Lønsmann forthcoming), norms for what counts as (in)appropriate styles of joking (Kappa 2016: 19–21), but also the ongoing negotiation of broader language ideological frameworks, for instance concerning the relationship between English as an international language and other languages in the 'sociolinguistic economy' of multinational companies (Millar 2017).

Trivially, not even assumed stable situations are stable forever. Similarly, transient social configurations may be transient to different degrees and in different ways. The time span available for semiotic sedimentation to take place or for 'common ground'

(Kecskes 2013) to materialize will differ between different types of transient configurations. In 'one-off' encounters of the type described by de Sapio (2013) in Victorian railway carriages, there will under normal circumstances be little time in which common ground can emerge and any pre-existing 'core' common ground may be scarce. Nevertheless, even in fleeting tourist encounters where one can hardly speak about 'communities' (cf. Jaworski & Thurlow 2013; Haberland 2007), patterns and expected modes of behavior often do exist because of the familiar and script-like character of such meetings. This indicates that while all social configurations are inescapably transient, some encounters may be experienced as being more transient than others, and semiotic resources may be seen as more or less portable across different configurations, also by participants themselves.

4. Transience as a complexifying heuristic

The empirical phenomena that form the staple of much research in pragmatics and related fields – linguistic systems, social configurations, indexical links between semiotic systems and social meaning, and so on – are not stable but have an inherent transient character. Nevertheless, as we have mentioned above, there has been a historical tendency to treat many of these phenomena as if they *were* stable. However, at this point in the development of the study of language in social life, we have arguably come to the point where the pretense of stability is no longer required for analysis. We do not have to accept unproductive simplicity in defining our object of study (cf. Bloomfield 1926) in order to say anything sensible about it in the first place. The study of social interaction in transient settings serves to complexify the object of study in pragmatics and related fields, and may as such be seen as one out of several recent notions that have encouraged scholars of language and social life to reconceptualize received notions in the literature and re-view the world.

The notion of *superdiversity*, as suggested by Vertovec 2007, urges us to move beyond simplistic understandings of diversity (cf. Arnaut et al. 2016; Goebel 2018). Individuals cannot meaningfully be grouped into a neat mosaic of distinct social groups based on ethnicity, religion or language. Instead we need a multidimensional perspective that allows us to explore the ongoing 'diversification of diversity' in a social reality where individuals and groups differ from and resemble each other along *multiple* dimensions at the same time. Similarly, notions such as *polylanguaging* (Jørgensen 2008), *translanguaging* (García & Li 2014; Holmen, this volume) and *metrolingualism* (Otsuji & Pennycook 2010) challenge fundamental notions about what constitutes 'a language' and give short shrift to the idea that multilingual productions should be analysed as concatenations of single-language segments, since features from different language systems can appear simultaneously and overlay each other. Metrolingualism and (some versions of) translanguaging also radically expand the remit of what counts

as the object of study since language is increasingly seen as co-existing with other semiotic modes and should be analysed as part of this whole rather than in isolation. A time-traveling Bloomfield would certainly be quite perplexed by the whole thing.

The study of transient settings can serve as a focalising heuristic allowing researchers to explore "the inherent flux and instability in the ways that communities form, evolve and eventually change into new constellations" (Lønsmann, Hazel & Haberland 2017: 267). As argued above, transience is not a new phenomenon (though transience may be experienced as a more salient feature of modern life for many people than at previous points in history), but by turning the analytical gaze towards settings characterized by transience, we may begin to explore aspects of social life which are relatively less explored than others. Thus, social settings characterized by transience may, just to mention a single example, provide fruitful empirical cases for the study of how linguistic diversity comes to be meaningful for diverse social groups (cf. Barfod 2018; Moore 2017; Kraft forthcoming), enabling scholars to gain a purchase on the vexed question of how social and linguistic norms emerge, develop and transform over time (cf. the discussion of Pitzl 2018 above).

The change in perspective offered by the study of transient settings can be illustrated by considering the case of 'code switching'. Sociolinguistic theory has based a number of its core concepts (like 'domain') on the experience – and, to some extent, theoretical construction – of relatively stable bilingual communities. According to Fishman's studies of Puerto Ricans in New York (Fishman et al. 1971) and Blom and Gumperz' (1972) study of the village of Hemnesberget in Norway, there are clear expectations about what language or dialect to speak to whom and when and about which topic in such communities. In Hemnesberget, for instance, the relative stability of shared norms for the use of a spoken language close to the written standard of *Bokmål* vs the local *Ranamål* famously allows speakers to utilize language (or dialect) choice as a meaning-making resource through 'metaphoric' or 'situational' code-switching.

The model proposed by Blom and Gumperz for code-switching in Hemnesberget has received criticism for being empirically ill-founded and overly simplistic in its account of the sociolinguistic reality of the community (Mæhlum 1996). Nevertheless, the study has been enormously influential and therefore serves as a good example of how powerful sociolinguistic theory can be when the complexity of social and linguistic reality is condensed into relatively simple sociolinguistic formulae. As the example above from Bloomfield (1926) illustrates, linguists have for a long time sought to provide stable models for unstable phenomena in an attempt to make description possible at all, and in the case of Blom and Gumperz, the strategy was successful.

But simplification only gets us so far. Later research on code-switching and related topics has done much to complexify the models developed in the early days of sociolinguistics (see overview in Auer & Eastman 2010), and researchers have repeatedly shown, from various perspectives, that code-switching – to the extent that this is even considered a relevant term (often it is not) – is a much more complex matter than

indicated in early descriptions, empirically as well as theoretically. The study of transient multilingual settings offers a new methodological perspective on processes of 'code-switching', by allowing researchers to track how practices of language alternation develop over time in specific social configurations, and gradually come to be imbued with meaning. Hazel's (2017) account of how an international and transient theater ensemble working on a production in Denmark develop norms for the use of their joint (and only partially overlapping) multilingual repertoire is a good illustration of this point.

5. Closing remarks

In the 1970s, 'the pragmatic question par excellence' could be stated as follows: "How did this utterance come to be produced?" (Haberland & Mey 1977: 8). This question is arguably still relevant today, but the range of possible factors to be included in providing an answer has grown as a result of analytical and theoretical complexification. Today, the study of communicative and social practices in transient settings offers a new vantage point from which the question may be explored, and also prompts us to ask new questions. Such additional questions include: How do hearers navigate the relative semiotic uncertainty that transience entails? How does this utterance come to mean something for the participants involved? How does this way of saying and doing things come to be established as normal practice in a setting where no shared interactional norms exist *a priori*? And many more. Transience is not a theoretical model that provides ready-made answers to these questions. It is a focalizing heuristic that directs our attention to them, identifying settings where they can be explored empirically.

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Cumulative index

This index refers to the whole of the *Handbook of Pragmatics*, its **Manual** as well as the 22 installments (the present one included), and it lists:

i. all labels used as entry headings in some part of the Handbook, with an indication of the part in which the entry is to be found, and with cross-references to other relevant entries;
ii. labels for traditions, methods, and topics for which separate entries have not (yet) been provided, indicating the entry-labels under which information can be found and the part of the Handbook where this is to be found.

The following abbreviations are used:

(MT) the Traditions section of the Manual
(MM) the Methods section of the Manual
(MN) the Notational Systems section of the Manual
(H) the thematic main body of the loose-leaf Handbook or (from the 21st installment onwards) of the specific annual installment (marked as H21, H22, etc.)
(T) the Traditions update/addenda of the printed Handbook (further specified for the bound volumes as T21, T22, etc.)
(M) the Methods update/addenda of the printed Handbook (further specified for the bound volumes as M21, M22, etc.)
(N) the Notational Systems update/addenda of the printed Handbook (further specified for the bound volumes as N21, N22, etc.)

References in the index may take the following forms:

"**Label** (**section reference**) (abbreviated as above)" — for labels which occur only as headings of an autonomous article
"**Label** (**section reference**); label(s)" — for labels which occur as article headings and for which it is relevant to refer to other articles as well
"**Label** label(s)" — for labels which do not (yet) occur as article headings, but which stand for topics dealt with under the label(s) indicated
"**Label** → label(s)" — for labels that are considered, for the time being and for the purposes of the Handbook, as (near)equivalents of the label(s) following the arrow; a further search must start from the label(s) following the arrow

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Chaoqun Xie, *Fujian Normal University*

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