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# Spatial coordinate systems in demonstrative meaning

NICLAS BURENHULT

## Abstract

*Exploring the semantic encoding of a group of crosslinguistically uncommon “spatial-coordinate demonstratives”, this work establishes the existence of demonstratives whose function is to project angular search domains, thus invoking proper coordinate systems (or “frames of reference”). What is special about these distinctions is that they rely on a spatial asymmetry in relativizing a demonstrative referent (representing the Figure) to the deictic center (representing the Ground). A semantic typology of such demonstratives is constructed based on the nature of the asymmetries they employ. A major distinction is proposed between asymmetries outside the deictic Figure-Ground array (e.g., features of the larger environment) and those within it (e.g., facets of the speaker/addressee dyad). A unique system of the latter type, present in Jahai, an Aslian (Mon-Khmer) language spoken by groups of hunter-gatherers in the Malay Peninsula, is introduced and explored in detail using elicited data as well as natural conversational data captured on video. Although crosslinguistically unusual, spatial-coordinate demonstratives sit at the interface of issues central to current discourse in semantic-pragmatic theory: demonstrative function, deictic layout, and spatial frames of reference.*

**Keywords:** *deixis, demonstratives, figure-ground, frame of reference, Jahai, semantic typology, space*

## 1. Introduction

Spatial deictic categories, like demonstratives, serve to relativize the location of referents to a particular type of Ground, namely the deictic center. Typically, systems are described as making distinctions as to distance from the speech situation (e.g., English *this* and *that*), often in interplay with contextual and pragmatic factors. But they do not usually provide specification of the direction in

which a referent is located and hence do not invoke spatial coordinate systems (Levinson 2003: 69–71). However, the descriptive literature does not lack reference to linguistic distinctions which may be good candidates for such angular encoding. Existing typologies of demonstrative systems mention crosslinguistically “special” or “unusual” distinctions encoding parameters like elevation and geography and provide examples from Papuan, Eskimoan, and other languages (see, e.g., Anderson & Keenan 1985, Diessel 1999, Dixon 2003). Little is known about the detailed referential properties of these distinctions, since descriptive works typically provide only brief translations and examples and detailed studies are generally lacking.

The aims of this article are threefold.

First, it aims to establish the existence of demonstrative distinctions which encode spatial coordinate systems (frames of reference) and whose spatial semantics are fundamental and inviolable by contextual and pragmatic factors (thereby going against the current trend in demonstrative theory, which involves the de-emphasis of space as a fundamental parameter). What is special about these distinctions is that they rely on some spatial asymmetry in relativizing a demonstrative referent (representing the Figure) to the deictic center (representing the Ground), thus invoking angular search domains.

The second aim is to propose a semantic typology of such distinctions based on the nature of the asymmetries they employ for the projection of search domains. A fundamental distinction will be made between systems relying on asymmetries external to the deictic Figure-Ground array (associated with the absolute frame of reference) and those relying on asymmetries internal to the deictic Figure-Ground array (associated with the intrinsic frame of reference).

Third, we will explore in detail the semantics and usage of one such system employing asymmetries internal to the deictic Figure-Ground array, recently discovered in Jahai, an Aslian (Mon-Khmer) language of the Malay Peninsula. Here, demonstrative distinctions encode the location of referents in search domains projected away from the speech situation on the basis of its two inherent facets: speaker and addressee. This system not only provides the first documented case of demonstratives operating in the intrinsic frame of reference; it also offers insights as to how the deictic scene may be construed by speakers of a language.

## **2. Background**

### *2.1. Demonstrative semantics*

The class of demonstratives is the most prominent exponent of spatial deixis in language. The term “demonstrative” is here taken to denote any member (in the form of a word or bound morpheme) of a closed grammatical class of expressions serving to narrow the contextually relevant search domain in

the locational relativization of a referent to the deictic center (the speech situation or either of its two components, speaker and addressee). This definition is intended to incorporate not only concrete spatial (situational or exophoric) uses of demonstratives, but also abstract discourse-internal (or endophoric) uses. Thus, “locational relativization” may pertain to a referent’s location in actual space, or its location in discourse. The definition includes both nominal and adverbial demonstratives (e.g., English *this* vs. *here*). Some languages have combinatorial demonstrative constructions, e.g., with a separate class of bound morphemes attaching to and modifying semantically more general demonstrative stems. Such constructions are also treated here as demonstratives. However, separate classes of modifying morphemes which also associate with classes other than demonstratives (e.g., directionals which attach to both demonstratives and verbs) are not discussed here.

In their most typical function, demonstratives serve to identify concrete referents in space in relation to the deictic center (exophoric reference). In describing the semantics of demonstrative distinctions across languages, typologists have underlined the fundamental role of spatial encoding. In particular, languages have been claimed to all have demonstratives which encode the location of referents on a distance scale, distinguishing referents which are proximal to the deictic center from those which are distant, e.g., English *here* and *this* versus *there* and *that* (Anderson & Keenan 1985: 281; Hyslop 1993; Diessel 1999: 36, 2005, 2006a; Dixon 2003: 86).

However, recent work on the semantic and discourse-pragmatic properties of demonstrative distinctions in individual languages frequently presents challenges to the idea that space plays a fundamental role in demonstrative meaning, especially the assumption that physical distance is a primary dimension. Hanks’s (1990, 1992, 2005) detailed exploration of deictic practice in Yucatec Maya shows that demonstrative use is more associated with notions of accessibility than with distance as such. Also, Özyürek (1998) shows that Turkish demonstratives previously considered to express distance distinctions instead solely encode whether the referent has the addressee’s attention or not (see also Küntay & Özyürek 2006). Similar claims are made by Burenhult (2003) for distance distinctions in Jahai. (See also Hanks 2006: 294–295 and various contributions in Dunn et al. (eds.) (forthcoming). For an account of the superordinate role of joint attention in demonstratives, see Diessel 2006b.)

Enfield (2003) similarly questions the traditional distance-based analysis of the two-term demonstrative system of Lao. Analyzing demonstrative use in real interactional situations captured on video, he defines a “here-space”, a spatially elastic and contextually and pragmatically dependent perimeter anchored in the speaker, associated with the here-form. Here-space, while always including the speaker, may or may not include the addressee. The there-form, essentially meaning ‘not here’, is associated with location outside the currently

conceptualized here-space. While spatial in a sense, the forms are concluded to be devoid of any meaning pertaining to metrical distance. Crucial to Enfield's argument is that, although demonstratives encode semantic primitives of "demonstration" and 'here' vs. 'not here', the use of a particular demonstrative form cannot be understood on the basis of semantics alone. Thus, the spatial location of the referent of a demonstrative is not a good predictor of which form is likely to be used.<sup>1</sup>

A parameter relating to the discussion of the role of distance in demonstrative semantics is that of participant-anchoring. Many languages encode in their demonstratives not only the spatial relation between the speaker (or speech situation) and the referent, but in addition that between the addressee and the referent. It is not uncommon for languages to be described as having a demonstrative form meaning 'there/that, near you', for example. Diessel (1999: 39–41) talks of person-oriented systems, which he considers distinct from distance-oriented systems (cf. Anderson & Keenan 1985: 284–286). Hyslop (1993: 22–24, 37–39) draws a sharp line between speaker-anchored and addressee-anchored distance distinctions, claiming that the former is fundamental. She also suggests that "distance is the only parameter which can be demonstrated with respect to the addressee".<sup>2</sup>

Re-analyzing the three-term demonstrative system of Spanish, Jungbluth (2003) emphasizes the need to view speaker and addressee as equal components of the speech situation and uses the term "conversational dyad". She rejects the conventional distance- or person-oriented interpretations of the system, showing instead how variation in usage is determined by the interplay between spatial location of the referent in relation to the conversational dyad and the respective facing of the interlocutors. Crucial to this account is the formation of an interactional inside in face-to-face conversation, a situation which prompts demonstrative usage which is different from that of face-to-back and side-by-side conversation. The significance of the addressee as an important reference point in demonstrative usage is also stressed by Danziger (1994) and Meira (2003).

Beyond distance and person, some languages are described as encoding more unusual parameters which would seem unquestionably spatial. Diessel (1999: 42–47, 50–51) identifies elevation and geography as two "special" deic-

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1. The difficulty in assigning spatial meaning to distance-encoding demonstratives is further illustrated by perceptual studies which show that linguistic distance distinction as manifested in demonstratives does not map well onto distance distinction in perception (Kemmerer 1999, 2006).

2. Contrary to Hyslop's suggestion, more recent work on the role of addressee attention (Özyürek 1998, Burenhult 2003), as well as the participant-encoding spatial distinctions explored in Section 4, shows that addressee-related parameters other than distance are very much in evidence.

tic features which are encoded in demonstrative forms in some languages. Elevation (exemplified by several languages in New Guinea, the Himalayas, Australia, and the Caucasus) involves forms encoding whether the referent is located higher or lower relative to the deictic center, while geography-encoding forms (described by Diessel as crosslinguistically uncommon and in his sample restricted to three languages) involve features such as “uphill/downhill” and “upriver/downriver”. Anderson & Keenan (1985: 291–292), similarly, identify “height” with respect to the speaker as a physical dimension which can be superimposed on spatial deixis, again citing examples from New Guinea, Australia, and the Caucasus. Furthermore, Dyirbal is given as an example of a language in which deictic contrast also involves “geographical or environmental features”. Also, Dixon (2003: 89) discusses similar systems in terms of “height”. Apart from Diessel’s distinction between elevation-encoding and geography-encoding forms, these typologies make little attempt to classify the parameters in greater detail. Hyslop (1993: 19–34), however, distinguishes a range of rare spatial parameters including not only “height” and “environmental” parameters like “inland/seawards”, “up/downhill”, “up/downriver”, and “up/downcoast”, but also highly unusual ones pertaining to “inside/outside” as well as “in front of/behind” the interlocutors.

The typologies differ as to how the unusual spatial parameters are related to other types of demonstrative distinctions. Anderson & Keenan (1985: 289–292) group them together with forms encoding referential contrast and visibility of the referent into a class of systems exhibiting dimensions of contrast beyond the ever-present distance dimension. Diessel (1999: 51) treats elevation and geography as distinct parameters on a par with other deictic dimensions, including distance, visibility, and movement of the referent. Dixon (2003: 86–92) groups together height distinctions with those encoding the stance or motion of the referent, and treats this category on a par with a spatial (distance) category and a visibility category. Hyslop (1993: 19–34) isolates more categories of rare spatial parameters but similarly places these on a par with the parameters of distance and visibility.

With regard to spatial semantics, these unusual distinctions are interesting because they would seem to encode the kind of spatial specificity that has been so difficult to pin down in the case of distance distinctions (cf. Enfield 2003, as well as Himmelmann 1996: 220). However, very little is known about how they work in real interactional situations, and to what extent their spatial use is influenced by pragmatic and other contextual factors.

## 2.2. *Deictic Figure and Ground*

Central to the discussion of this article are the spatial categories of Figure and Ground (as defined by Talmy 1983) and how these are to be mapped onto

the deictic scene. The theoretical literature on deixis has long argued that the speech situation and/or either of its participants should be looked upon as a particular form of ground object, to which referents of deictic expressions are related. Bühler (1934 [1990]: 117) describes the speaker as the point of origin in a coordinate system, as does Fillmore (1982: 35). Fillmore (1982: 43), drawing on the terminology introduced by Talmy (1978, 1983), also explicitly refers to referents of locating deictic expressions as Figures, and the speaker's (or in some cases the addressee's) body as Ground. Similarly, Hanks (1992) equates Figure with the denotatum and Ground with the indexical origo. Elaborating on different types of deictic Ground, Hanks makes a distinction between Common ground (Sociocentric, including both speaker and addressee), Speaker (Egocentric), Addressee (Altercentric), and Other (non-participant in current speech event). Ego- and Altercentric grounds are described as pragmatically asymmetric "because they split the Speaker from the Addressee", while Common ground is pragmatically symmetric in that it "joins the two and puts them on roughly equal footing relative to the referent" (Hanks 1992: 67–69).

Hanks's identification of different types of deictic Ground finds an interesting comparison in Langacker's account of subjectification (Langacker 1990: 315–342). Employing the term Ground narrowly to refer only to the speech event in the form of its participants and immediate circumstances (instead using "landmark" for the more general spatial concept of Ground as defined by Talmy), Langacker explores the various ways in which entities can be related to the speech event. What is interesting for our purposes is his characterization of the speech event as basically a composite phenomenon, and that other entities can be related to it in two distinct ways. Either they are related to the speech event as a whole (equivalent to Hanks's symmetric Sociocentric category) or to a part of it in the form of speaker or addressee (equivalent to Hanks's asymmetric Ego- and Altercentric categories). Langacker (1990: 319–320) refers to these parts of the speech event as "facets" of the Ground (cf. Hausendorf 2003 on this point, as well as Jungbluth 2003).

Levinson (2003: 69–71) similarly describes the location of the interlocutors (the deictic center) as "a rather special ground or reference point". He does so in the context of spatial frames of reference, showing that deictic categories (with few exceptions) typically do not encode angular search domains and therefore do not qualify for frames-of-reference analysis (see further in Section 2.3).

### 2.3. *Spatial frames of reference*

In recent years, much of the discussion of spatial distinctions in language and cognition has revolved around the notion of frames of reference (Levinson 1996a, 2003; Pederson et al. 1998; Pederson 2003; Levinson & Wilkins (eds.) 2006). Spatial frames of reference are the coordinate systems employed in lan-



guage and cognition to map the spatial relationship between objects (Figure and Ground). There are three such frames of reference, conventionally labelled INTRINSIC, RELATIVE, and ABSOLUTE. Each of these relies on a distinct type of spatial asymmetry in order to project a search domain for locating Figure and Ground in relation to each other.

The intrinsic frame of reference employs asymmetries which are internal to the Figure-Ground configuration (henceforth called “array”). Specifically, a facet (or intrinsic feature) of one of the objects is used to project a search domain in which the other object can be found. A spatial description utilizing the intrinsic frame is *the ball is at the man’s back*. In this description the Ground object is represented by the man, and the asymmetry is represented by his back, from which a search domain projects in which the Figure (the ball) can be found. While it is typically the Ground which has asymmetries in intrinsic relationships, it is also possible for the Figure to be that spatial entity which is assigned asymmetries and is oriented in relation to the Ground, e.g., *the man is facing the mountain* (Terrill & Burenhult 2008). Here, a facet of the Figure (the front side of the man) is used to project a search domain with the purpose of orienting him in relation to the Ground (the mountain).

The relative frame of reference draws on a viewpoint external to the Figure-Ground array, mapping the asymmetries of that viewpoint (typically the bodily axes of the viewer) onto one of the objects. These transposed asymmetries are used to project the search domain in which the other object is to be found. A typical such description is *the ball is to the left of the man (from my point of view)*. Here, the lateral bodily axis of the viewer is mapped onto the Ground object (the man) and is used to project a search domain in which the Figure (the ball) is to be found.

The absolute frame of reference, finally, relies on asymmetries in the wider environment. These provide bearings which are imposed on the Figure-Ground array. By means of such bearings, a search domain can be projected from one object in order to locate the other object. Cardinal directions are typically used in such descriptions, and a description employing the absolute frame of reference is, e.g., *the ball is north of the man*. Here, the abstract bearing north is used to project a search domain from the Ground (the man) in which the Figure (the ball) can be found.

Levinson (2003: 52–53) provides a set of rotation tests for distinguishing the three frames of reference. According to these tests, an intrinsic description of a spatial configuration will remain true if the whole Figure-Ground array is rotated, or if the viewer is rotated around the array, but it will be falsified if the Ground object is rotated. A relative description still holds upon rotation of the Ground object, but it is rendered false upon rotation of the whole Figure-Ground array or rotation of the viewer. An absolute description remains true if the Ground object or viewer is rotated, but will be falsified by rotation of the

whole Figure-Ground array. For an exhaustive account of the logical properties of the three different frames of reference, as well as their exponents in language and cognition, see Levinson 2003.

Crosslinguistic work has shown that speech communities differ profoundly as to which frame(s) of reference they prefer for describing spatial relationships, even in small-scale (table-top) space (Pederson et al. 1998). While speakers of some languages (like Dutch and Japanese) rely heavily on the relative frame of reference in such small-scale spatial description, speakers of many other languages prefer the absolute frame (like Arrernte and Tzeltal) or the intrinsic frame (like Kilivila and Mopan).

The role of deixis in frames of reference has been a matter of some confusion. Some authors have proposed a distinct deictic coordinate system, which employs the facets and axes of Ego (or speaker) for the projection of search domains (see, e.g., Miller & Johnson-Laird 1976: 396, Levelt 1982, Danziger 2004). Levinson (2003: 69–71) refutes the notion that deixis itself constitutes a spatial frame of reference, arguing that it represents a distinct spatial parameter which can operate in all three frames of reference. He illustrates this fact with the expressions *north of me*, *in front of me*, and *in front of the tree from where I'm standing*, which “make use of the absolute, intrinsic and relative frames of reference, respectively, but all contain an explicit deictic component” (Levinson 2003: 71).<sup>3</sup>

Equally crucially, Levinson (2003: 70) makes it clear that, in order for a deictic category to be analyzable in a frames-of-reference context, it has to invoke a spatial coordinate system which projects angular search domains. Spatial deictic categories in language, like demonstratives, typically do not encode such coordinates (contrary to what the terminology of Bühler 1934 and Fillmore 1982 suggests, see Section 2.2) and therefore their inherent semantics are not available to frames-of-reference analysis. As noted in Section 2.1, demonstratives normally encode non-angular notions of distance and presence, or only vaguely spatial notions of accessibility and visibility, or purely pragmatically determined notions pertaining to shared versus new information and the attentional status of the addressee. The angular information in such referential contexts is not provided through linguistically encoded specification but instead frequently through non-linguistic means like gesture (Levinson 2003: 70; see also Levinson 1996b: 360–362 and Kendon 2004: 222).

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3. While Levinson (2003) rejects the treatment of deixis as a spatial coordinate system, Hanks (2006: 294–295) criticizes him for still considering it to be a spatial category. He does so on the grounds of the difficulties involved in assigning spatial meaning to deictic expressions (see Section 2.1). The present work acknowledges the difficulties in viewing deixis *per se* as a spatial system but argues that specific deictic categories may be radically spatial in their semantic encoding. It emphasizes the advantages of treating space and deixis as two analytically distinct domains which under certain circumstances can converge categorially.

However, of central interest to the present study, Levinson (2003: 70, 109) points out that demonstrative distinctions in some languages are exceptions to this general pattern in that they have “built-in directions in the absolute frame of reference”. He mentions Eskimoan languages, known for their elaborate demonstrative systems, as possible examples. In the following, Levinson’s tentative claim will be further validated, and it will be shown that such angular encoding is not restricted to the absolute frame of reference: some languages also employ the intrinsic frame in their demonstrative systems. In fact, demonstrative distinctions which have been considered curious exceptions belong to a diverse but well-defined family of systems which are conveniently described and classified through frames-of-reference analysis.

#### 2.4. *This study*

This study is about unusual spatial demonstrative distinctions, a rare linguistic phenomenon but one which brings together issues central to current discourse in semantic-pragmatic theory: demonstrative function, deictic layout, and spatial frames of reference. The arguments to be made in this article set out from the general idea that exophoric demonstrative reference reflects a Figure-Ground relationship. The Ground of this relationship is represented by the deictic center, the Figure by the demonstrative referent (although precise characterization of the deictic Ground within and across languages is not always made with ease, as will be shown below). This interpretation of the deictic scene as consisting of two distinct entities, outlined in Section 2.2, is a fundamental prerequisite for the subsequent application of frames-of-reference analysis to it. A second prerequisite for such an analysis is that the deictic category, in this case particular demonstrative distinctions, semantically encodes angular search domains. Some of the unusual demonstrative parameters mentioned in Section 2.1 qualify, and, by applying the frames-of-reference typology outlined in Section 2.3, we will here isolate a well-defined semantic class of demonstrative distinctions, henceforth referred to as SPATIAL-COORDINATE DEMONSTRATIVES. Also, by paying close attention to where and which spatial asymmetries are employed to project search domains, we will develop a fine-grained semantic taxonomy of the distinctions assigned to this class and explore its logical limits.

Unfortunately, however, characterization of distinctions is made difficult by the fact that accounts of demonstratives of individual languages typically lack the descriptive detail necessary for a thorough analysis of their spatial characteristics. Grammars usually do not chart demonstrative semantics in such detail, but provide only brief translations and examples of forms and usage.<sup>4</sup>

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4. This and later remarks on descriptive insufficiency are not intended to be critical of such descriptions. They are merely meant to recommend the exercising of caution in drawing conclusions about detailed demonstrative semantics on the basis of them.

Not only is it difficult to isolate the exact spatial meanings, but also to determine whether such spatial meanings are absolute or can be overridden by discourse-pragmatic or contextual factors. Likewise, language descriptions seldom elaborate on how the deictic center is conceptually construed by speakers. It is therefore difficult to draw firm conclusions about what the deictic Ground may actually represent in a given language (speaker, addressee, or both). Any classificatory endeavor is therefore necessarily of a reconnoitering nature. Nevertheless, the typology to be proposed here is intended to provide an analytical framework in which these unusual demonstrative distinctions can be conveniently described and related to each other.

Although not previously the subject of frames-of-reference analysis, the spatial demonstratives targeted in this study are highly relevant to the issue. Much of the ongoing debate about frames of reference is about to what extent cross-linguistic differences in linguistic description of spatial relationships are indicative of differences in spatial cognition. One central question is if the prompt-ed linguistic descriptions on which frames-of-reference analysis is based are typical of spatial descriptive conventions in the language studied, or if they involve linguistically available but otherwise non-conventionalized strategies (Li & Gleitman 2002, Levinson et al. 2002). The spatial demonstratives studied here are not only conventionalized as spatial descriptors but also form an integral part of the grammar, and would thus seem to be ideal indicators of which frame(s) of reference are conceptually salient (cf. Palmer 2002). In fact, as will be shown, the spatial-coordinate demonstratives are semantic compacts, one single morpheme being able to encode complex spatial relationships.

Going against the current trend in demonstrative theory, which involves the de-emphasis of space as a semantic parameter, this study will show that spatial distinction can in fact be a fundamental and rigid function of some demonstrative systems.

The following sections chart the parameters in detail. Section 3 outlines a typology of distinctions on the basis of the nature of the spatial asymmetries employed, making a primary distinction between systems in which the encoded asymmetry is external to the deictic Figure-Ground array (Section 3.1) and those in which it is internal to the deictic Figure-Ground array (Section 3.2). Section 4 provides detailed exploration of the spatial characteristics of one system of the latter type, that of so-called exterior demonstratives in Jahai, a Mon-Khmer language spoken in the Malay Peninsula. This system not only provides a so far unparalleled example of array-internal asymmetries employed in the intrinsic frame of reference, but also offers insights into how the deictic Ground can be construed by speakers of a language. This section is also intended to illustrate how the semantic analysis of spatial-coordinate demonstratives can be approached methodologically. Section 5, finally, places

the findings in the wider context of demonstrative semantics and frames-of-reference typology.

### 3. A typology of spatial-coordinate demonstratives

This section outlines a typology of spatial-coordinate demonstrative parameters. A primary distinction is made on the basis of the nature of the spatial relationship encoded in the demonstrative form, that is, *WHERE* spatial asymmetries are employed to project search domains. Two such fundamental strategies can be distinguished. One strategy involves search domains which rely on asymmetries which are external to the deictic Figure-Ground array. This type reflects an absolute frame of reference and is dealt with in Section 3.1. The other strategy involves search domains projected from asymmetries internal to the deictic Figure-Ground array. This represents an intrinsic frame of reference and is explored in Section 3.2. Each of these major categories is then divided into subcategories on the basis of *WHAT* spatial asymmetry is used to project search domains. Figure 1 summarizes the typology.

#### 3.1. *The absolute strategy: Array-external asymmetries*

The first and most common class of systems is distinguished by the employment of axes based on asymmetries which are external to and independent of the deictic Figure-Ground array. The coordinate system invoked by the demonstrative involves the projection of a search domain from the deictic center (the

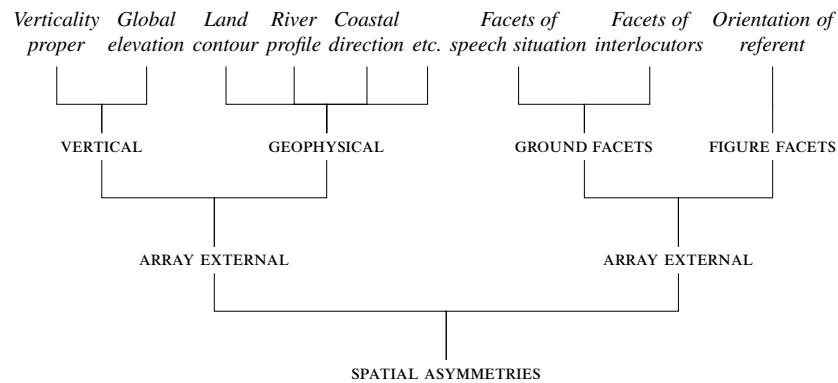


Figure 1. A typology of spatial asymmetries employed in spatial-coordinate demonstratives

Ground) along the axial asymmetry in order to relativize the referent (the Figure). Such asymmetries can range from being fully abstract (as in the case of cardinal directions or the gravitationally determined vertical axis) to locally dependent concrete geophysical features (e.g., directions along a coastline or a river's profile). These systems are classified in more detail below.

The most common type of demonstrative coordinate system is one which employs the vertical dimension in some way or other, a category varyingly referred to in the typological literature as "elevation" (Diessel 1999: 42) and "height" (Hyslop 1993: 29, Anderson & Keenan 1986: 291, Dixon 2003: 89), e.g., 'that, up', 'that, down'. However, a clear distinction needs to be made between systems which draw on (i) verticality proper, (ii) global elevation, and (iii) geophysical elevation. Existing accounts of systems frequently lack the descriptive detail necessary for the identification of which type is involved.

A coordinate system restricting itself to verticality proper projects very narrow search domains along a truly vertical axis running at a right angle through the deictic center, invoking a sense of exactly above/overhead or below/underneath. One would think such restricted search domains would be of limited use and that verticality proper therefore is not represented in demonstrative systems. However, Dyirbal has demonstrative modifiers which may carry this meaning, in addition to other demonstrative modifiers encoding geophysical elevation (Dixon 1972: 48). Some translations given for demonstrative forms in Eskimo-Aleutian languages indicate that similar distinctions may exist there, again distinguished from geophysical elevation (see, e.g., Jacobson 1995: 76 for Yup'ik). In all of these cases, however, the exact characteristics of the search domains are unaccounted for.

Coordinate systems encoding global elevation are those which project more general search domains above or below the level of the deictic center. Thus, the axis from the deictic center to the referent can but need not be strictly vertical. The search domains may also include (but are never restricted to) elevation as manifested geophysically, such as uphill/downhill and upstream/downstream, provided there is a salient difference in elevation between the deictic center and the referent. Examples of such a system include the elevation-encoding demonstrative forms in Jahai (see Section 4.1, Burenhult forthcoming), where a superjacent distinction encodes location above the level of the deictic center (including, e.g., overhead, uphill, and upstream locations) and a subjacent distinction encodes location below the same level (e.g., underneath, downhill, and downstream locations). Also, West Greenlandic is described by Fortescue (1984: 260) as having distinctions encoding position above and below the speaker, typically but not necessarily in relation to geophysical features (see also Fortescue 1988: 29 for similar distinctions in Barrow Iñupiaq). The elevation-encoding distinctions attributed to Muna by Van den Berg (1997: 201) and to Eipo and Yale by Heeschen (1982) seem to belong to the same category. One would

assume that this general type of elevation-encoding system is the most common one. Again, however, the lack of detailed semantic descriptions makes it difficult to determine this.

Coordinate systems encoding geophysical elevation are those which restrict themselves to elevation as manifested in features of the geophysical environment, e.g., 'that, uphill', 'there, downstream'. Such distinctions cannot be used to refer to the vertical dimension in general. Note especially that their slanting search domains project just as much, if not more, in the horizontal dimension. This is also the dimension in which they make their most salient contrasts. This is unlike the previous two types, where the encoded contrasts are always strictly in the vertical dimension. This type of system is therefore fundamentally different from the other two, and, given its dependence on features of the geophysical environment, is assigned to a class of geophysical coordinate systems.

Such geophysical systems involve all demonstrative distinctions which encode search domains projected from the deictic center towards or along asymmetries in the form of geophysical features of the environment. The spatial extent of these search domains may vary. Typically, two distinctions contrast opposite directions from the deictic center. While the geophysical cues are always conventionalized (since they are encoded in the demonstrative forms), they have the potential to represent varying degrees of concreteness as well as directional standardization and scope (see further below). These systems are crosslinguistically uncommon (cf. Hyslop 1993: 32, Diessel 1999: 44).

The asymmetries most often employed in such systems to create axes are those already touched upon: land contour (uphill/downhill) and river profile (upstream/downstream or upriver/downriver). Note again that for these distinctions to qualify as representing geophysical systems, they have to be restricted to such geophysical manifestations – they cannot include other forms of vertical contrasts. The demonstrative modifiers in Dyirbal (Dixon 1972: 48, 2003: 89) provide a particularly interesting example, with upriver/downriver distinctions contrasting with uphill/downhill ones (in addition to forms possibly encoding verticality proper, see above). However, the uphill/downhill forms are said to also refer to cliffs and trees, suggesting that these particular distinctions may actually encode elevation in general rather than land contour alone (see above). It is also not clear if the upriver/downriver and uphill/downhill axes are mutually contrastive (as in up/down lengthwise vs. crosswise in relation to the flow of water).

Another intriguing example is found in Belhare (Bickel 2000, see also Bickel 1997). Here, demonstratives distinguish geophysical up, down, and across in relation to the deictic center. Moreover, in contrastive contexts, a parallel set of up/down/across demonstratives encodes not only a referent's location in relation to the deictic center but also to other objects, which leads Bickel (2000:

227–234) to posit a secondary, transposed point of origin which is not the deictic center.

Other examples include the uphill/downhill distinction in Hua as described by Haiman (1980: 258–260). A variant on the same theme is the beach/bush or seawards/landwards distinctions described for some languages (see, e.g., Mosel 1982: 118 for Tolai).

Another asymmetry reported to be encoded in geophysical systems is coastal direction. This seems to be a distinction which is particularly common in Eskimoan languages (see especially Fortescue 1984: 260–262 for West Greenlandic, and Fortescue 1988: 29 and MacLean 1986: 223–224 for Iñupiaq). However, some of these distinctions also seem to encode other parameters, and it is difficult on the basis of existing accounts to get a good idea of how to formally characterize the coordinate systems they invoke. Furthermore, they are sometimes translated in terms of cardinal directions like North and South. Again, it is difficult to evaluate their semantics in the absence of more detailed descriptions.

Systems based on other environmental asymmetries, not all of which are strictly geophysical (e.g., the path of the sun and prevailing wind directions or ocean currents), would belong to the same class of systems. Such systems are not in much evidence, although two deictic locatives in Iaa, described as encoding cardinal directions, may be a case in point (Ozanne-Rivierre 2004).

Levinson (2003: 109) argues that the axes these geophysical systems create are truly fixed bearings which abstract away from the concrete geophysical features themselves, much like cardinal directions. Thus, demonstratives encoding, e.g., uphill/downhill would be used in the same constant direction irrespective of the local land contour. While such fully abstract, geophysically derived systems are known to exist in spatial categories of some languages (e.g., Tzeltal, see Levinson 2003: 146–168), it is not possible at present to determine whether the geophysical demonstrative distinctions described to date involve concrete or abstract bearings. The present classification therefore does not make a distinction between abstract and concrete geophysical systems. The significant point to be made is that an asymmetry (real or imagined) which is external to the deictic Figure-Ground array provides bearings for the projection of search domains from the Ground (the deictic center) in which the Figure (the referent) is to be found.

### 3.2. *The intrinsic strategy: Array-internal asymmetries*

Members of this class of systems are characterized by employing asymmetries inherent to the deictic Figure-Ground array as a basis for the spatial coordinate system. For example, the coordinate system invoked by the demonstrative can be established by means of an asymmetry assigned within the deictic Ground.



One such type of system sees the speech situation as a composite Ground entity and the speaker and addressee as asymmetries of that entity, search domains projecting in two contrasting directions on the basis of these asymmetries. The reader is here referred to Section 4 and the Jahai exterior demonstratives explored there. These represent the only documented case of such a system.

Another possible type of system is one where asymmetries of the individual interlocutors are used for projecting search domains. For example, asymmetries could be represented by the inherent front or back of the speaker or the addressee. Two demonstratives described by Bogoras (1922: 723) for Chukchi as meaning 'that behind the person addressed' and 'that behind the person speaking' would seem to belong to this category (see also Hyslop 1993: 34).<sup>5</sup> Also, Dixon (1972: 48) describes a demonstrative modifier in Dyirbal indicating location in front of the speaker. The deictic Ground would in these cases be represented by an individual interlocutor rather than the speech situation as a whole. In general, the evidence for such systems is meager.

One could argue that the vertical dimension discussed in Section 3.1 could operate intrinsically too, by drawing on asymmetries of the vertical bodily axis, e.g., 'that, above our heads' or 'that, below your feet'. For that to be the case, however, the search domains would need to be constantly projected on the basis of the axes of interlocutors' bodies irrespective of their posture (i.e., not on the basis of any body-external vertical dimension) so that they apply also if, say, the interlocutor(s) is lying down or hanging upside down. While a perfectly logical version of an intrinsic system, such distinctions have, to my knowledge, not yet been documented.

As noted in Section 2.3, intrinsic relationships may also involve asymmetries of the Figure, not necessarily the Ground. So a logically possible alternative is a type which employs asymmetries of the referent for the projection of a search domain which orients the Figure in relation to the Ground (e.g., 'that, facing us', 'that, facing away from us', 'that, facing across from us'). While no demonstrative distinctions have been described to function in exactly this way, existing typologies do mention demonstrative modifiers which encode movement or direction of the referent towards or away from the deictic center, as well as across the visual field of the interlocutors. Diessel (1999: 45–46) cites examples from Nunggubuyu and Kiowa, Dixon (2003: 89–90) from languages of the Waikurúan family. Motion is taken to be fundamental in these distinctions. However, in describing the centripetal, centrifugal, and transverse

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5. This is conspicuously similar to what Jahai exterior demonstratives misleadingly seem to mean when used in face-to-face conversation (cf. Section 4). One might speculate that Bogoras understood the system only partially and that the Chukchi forms in fact represent the only known equivalent of the Jahai exteriors. However, Dunn (forthcoming) refutes any angular analysis of contemporary Chukchi demonstratives.

suffixes on demonstratives in Nunggubuyu, Heath (1984: 281–291) makes it clear that motional readings are just one possibility. The same forms can also express orientation or alignment of static referents in relation to the deictic center. It might be suggested that referent orientation, rather than motion as such, forms the true semantic core of some such systems (with motion perhaps representing one contextual manifestation of orientation). Thus, possibly, the demonstratives encode the spatial orientation of distinct facets of the referent in relation to the deictic center. If so, we can apply frames-of-reference analysis involving an intrinsic frame which employs asymmetries of the Figure rather than the Ground (cf. Terrill & Burenhult 2008).

### 3.3. *Is there a relative strategy?*

The relative frame of reference involves an array-external viewpoint which maps asymmetries onto the Figure-Ground array. Typically, asymmetries represented by the bodily axes of the viewer are transposed onto the Ground, from which a search domain is projected in order to locate the Figure. The spatial relationship is associated with conventionalized expressions parallel to English examples like *to the left of*, *to the right of*, *in front of*, and *behind*. Maintaining that the deictic center represents the Ground, it is difficult to conceive of a system in which demonstratives encode a viewpoint outside the speaker/addressee dyad, e.g., ‘that, which from viewpoint X is to the right of us’. No such system has ever been reported. Perhaps a more plausible system would be one in which the speaker alone represents the deictic Ground and the addressee represents the viewpoint, e.g., ‘that to the right’ of me from your point of view’. Again, however, such distinctions have so far not been claimed to exist.

Note that equating the relative viewpoint with the deictic center disqualifies the latter as Ground (cf. Levinson 2003: 47). So while it is possible to imagine a system where demonstratives encode relative location of referents using the deictic center as viewpoint, frames-of-reference analysis would no longer apply to the deictic scene. A possible example is the secondary and strictly contrastive use of demonstratives to indicate left vs. right object, reported for two otherwise distance-encoding forms in Tamil (Pederson 2006: 427, Levinson 2003: 108). While the origin of the coordinate system is internal to the deictic center, the search domain is projected from an entity which is not. Note also that the spatial contrast in these forms represents a contextual reading rather than proper semantic encoding.

Thus, in principle, the relative frame of reference has the potential to operate in two different ways in relation to the deictic scene. Either it can employ an asymmetry external to the deictic Figure-Ground array (in the form of a viewpoint) to project search domains from the deictic center in which the referent can be found. Or it can employ the deictic center as the viewpoint in order to

project search domains in Figure-Ground configurations which do not include the deictic center (cf. Palmer 2003). However, in practice, the relative frame of reference does not seem to lend itself very well to semantic encoding in demonstratives.

#### 4. A case study: Exterior distinctions

This section introduces and examines unusual EXTERIOR demonstrative distinctions present in Jahai, an Aslian (Mon-Khmer) language spoken in the Malay Peninsula. On the basis of elicited data as well as natural conversational data captured on video, these distinctions are analyzed as encoding an intrinsic frame of reference.

##### 4.1. *Background*

The Aslian languages, a genetically and geographically distinct branch of the Mon-Khmer language family, are spoken by a group of small and culturally diverse minorities in the Malay Peninsula. Aslian languages typically have rich sets of distinctions in deictic categories, some of them having multi-term demonstrative systems displaying five or more distinctions (see Benjamin 1976: 161 for Temiar, Diffloth 1976: 90 for Jah Hut, and Burenhult 2003, 2005: 84–86 for Jahai). For example, several systems have forms encoding elevation or river profile (see Section 3.1). Jahai, a language belonging to the Northern Aslian subbranch of Aslian, has a particularly elaborate set of eight demonstrative distinctions. Also, Jahai is possibly unique in having the exterior distinctions to be explored here.<sup>6</sup>

Structurally, Jahai demonstratives form a morphosyntactically uniform and well-defined form class. Eight demonstrative roots, all of which begin with a glottal stop /ʔ/, are used adverbially, typically in adjunct adpositional phrases headed by prepositional proclitics signalling location, source, goal, and the like

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6. Jahai (1,000+ speakers) is spoken by groups of nomadic rainforest hunter-gatherers, nowadays mostly settled in regroupment villages. It is spoken in a mountainous area covering northeastern Perak and western Kelantan, Peninsular Malaysia, as well as parts of southern Narathiwat Province, Thailand. For a comprehensive account of the language, see Burenhult 2005. Preliminary work on Menriq (an undescribed close relative of Jahai with about 150 speakers, spoken in Kelantan state, Peninsular Malaysia) shows that the demonstrative system of this language is structurally identical to that of Jahai (Burenhult, field notes). However, its functional properties have yet to be investigated.

The Jahai orthography employed in this article is phonemically based and largely conforms to the IPA. It departs from the standard IPA and from the orthography of Burenhult 2005 in that the voiced palatal stop is symbolized by *j* and the palatal approximant by *y*. The phonemic rendering of forms requires that epenthetic vowels are omitted, which frequently results in complex consonant clusters. For information on syllabification patterns and the phonetic realization of epenthetic vowels, the reader is referred to Burenhult 2005: 33–38.

(literally ‘at here’, ‘from there’, ‘to here’, etc.). All of these roots may be turned into nominal demonstratives through the replacement of the initial glottal stop with the voiceless alveolar stop /t/. This process of phonemic supersession, in which a root-external phoneme-*cum*-morpheme fuses phonologically with its host root and produces an unsegmentable form, is a morphological strategy that is unique to this set of eight demonstrative forms. It is not found in other areas of Jahai grammar.<sup>7</sup> The resulting forms are typically used adnominally, i.e., they function as modifiers of nouns or pronouns within the noun phrase. As such, the eight forms are associated with a single, post-nominal NP slot. They may also be used pronominally and then represent full NPs by themselves.<sup>8</sup> Thus, the eight forms being formally identical, equal, and mutually exclusive, Jahai demonstratives are easily identified and make up a well-defined form class.

Functionally, however, the system is rich and diverse, the eight distinct forms encoding a range of parameters. Burenhult (forthcoming) proposes an analysis involving a symmetrical system of four categories of main parameters (Accessibility, Inaccessibility, Exteriority, and Elevation), each of which exhibits a two-way opposition (distinguishing speaker-anchoredness from addressee-anchoredness in the first three categories, and superjacent from subjacent in the fourth). The addressee-anchored forms of the accessible/inaccessible categories are pragmatically specialized: the accessible category here only encodes the addressee’s familiarity with and attention to the referent, whereas the inaccessible form is used for attention-drawing. The formal and functional characteristics of the system are summarized in Table 1 (for more comprehensive accounts of the accessibility-related forms, see Burenhult 2003, forthcoming). The following sections are concerned only with the functional properties of the two exterior distinctions.

#### 4.2. *What is an exterior demonstrative?*

To Jahai speakers, the speech situation is a container. As soon as a person addresses another person, they and the area between them become a connected spatial entity. This entity is held together by an imagined PERIMETER between the interlocutors. The perimeter is spoken of as the *kleŋ* ‘inside’; the area

7. A prefixed morpheme /t-/ is also used as a relative marker at word level (Burenhult 2005: 124–125), creating participle-like modifiers from mainly verbs. Morphophonemically, however, these behave differently from the nominal demonstrative forms in that they do not involve replacement of the initial consonant (including the glottal stop) of the base, e.g., *t-ʔtʔet* ‘knowing’ from *ʔtʔet* ‘to know’, *t-ʔhəy* ‘small’ from *ʔhəy* ‘to be small’. The fusion of /t/ with the host root of nominal demonstratives can therefore not be explained in terms of simple phonetic deletion of the glottal stop during prefixation of /t-/, as might otherwise be argued.

8. The use of the term nominal demonstrative, which incorporates both adnominal and pronominal forms, follows Dixon’s proposals for demonstrative terminology (Dixon 2003: 65–69).

Table 1. *The Jahai demonstrative system*

Main parameter	Oppositions	Adverbial form	Nominal form	Referential characteristics in exophoric use
+ACCESS	Speaker-anchored	<i>ʔəh</i>	<i>təh</i>	Accessible to speaker (proximal, perceptible, reachable, approachable, etc.)
	Addressee-anchored	<i>ʔon</i>	<i>ton</i>	Accessible to addressee (familiar, attended to)
−ACCESS	Speaker-anchored	<i>ʔaniʔ</i>	<i>taniʔ</i>	Inaccessible to speaker (distal, imperceptible, unreachable, inapproachable, etc.)
	Addressee-anchored	<i>ʔūn</i>	<i>tūn</i>	Inaccessible to addressee (unfamiliar, unattended to)
EXTERIOR	Speaker-anchored	<i>ʔadeh</i>	<i>tadeh</i>	Located outside speaker's side of speech perimeter
	Addressee-anchored	<i>ʔniʔ</i>	<i>tɲiʔ</i>	Located outside addressee's side of speech perimeter
ELEVATION	Superjacent	<i>ʔitih</i>	<i>titih</i>	Located above speech situation (overhead, uphill, or upstream)
	Subjacent	<i>ʔuyih</i>	<i>tuyih</i>	Located below speech situation (underneath, downhill, or downstream)

beyond the perimeter is the *hip* ‘outside’.<sup>9</sup> Elicited judgments suggest that the “inside” is conceived of as a circular or oval region between the interlocutors. In trying to concretize the concept, maybe we should think of it as a bubble which forms between two persons as soon as they enter into a speaker/addressee relationship. There is thus reason in the case of Jahai to equate the deictic center with the speech situation as a whole (or, in Jungbluth’s 2003 terminology, the conversational dyad consisting of speaker and addressee).

This interactional entity is crucial to our understanding of the spatial logic of exterior demonstratives. Firstly, the two exterior forms, *ʔadeh* (nominally *tadeh*) and *ʔniʔ* (nominally *tɲiʔ*), can only be used to refer to locations and objects situated outside the imagined speech perimeter. For example, it is impossible to use them to refer to an object located between the speaker and

9. The relational nouns *kley* and *hip* also mean ‘inside’ and ‘outside’ in relation to more concrete containers, like a house or a box.

addressee. This outside character of their reference in relation to the speech situation is what motivates the term exterior demonstrative (Burenhult 2003).

Secondly, the duality of the exterior forms represents participant-anchoring. The form *?adeh/tadeh* can only be used for reference to locations and objects outside the speaker's side of the imagined speech perimeter. The form *?pi?/tpi?* can only be used for reference outside the addressee's side of the perimeter. Hence their classification as speaker-anchored vs. addressee-anchored exterior. The two regions associated with the forms are spatially equivalent and mutually exclusive, the speaker and addressee thus functioning as two equal cues in a binary and spatially symmetrical system of reference around the speech situation.

Looked at in terms of spatial coordinates, it is convenient to characterize speaker and addressee as asymmetries (or facets) of a Ground (the speech perimeter). A referent of an exterior demonstrative is the Figure located in relation to the Ground, and two opposite facets of that Ground help to disambiguate on which side the Figure is to be found. In other words, the coordinate system originates in the speech perimeter and projects search domains away from the perimeter in two contrasting directions on the basis of its two asymmetries, speaker and addressee. This view of exterior reference as expressing a binary spatial relationship between a Figure and a faceted Ground represents an intrinsic frame of reference, as defined by Levinson (2003) (see further in Section 4.7).

To reiterate, a single morpheme in the form of an exterior demonstrative (nominal or adverbial) implicitly encodes a complex spatial configuration involving reference to a Figure in relation to an imagined Ground which has two concrete facets in the form of the interlocutors. Translations of the exterior demonstratives into English are therefore necessarily cumbersome: *?adeh/tadeh* 'there/that, outside my side of our speech perimeter'; *?pi?/tpi?* 'there/that, outside your side of our speech perimeter'. In natural conversation, any movement on the part of an interlocutor or referent, or any change of referent or conversational roles, will involve instant upheaval of previous exterior reference and the establishment of a new configuration. Native speakers skillfully master these unpredictable and rapid dynamics of reference, the conceptually salient constants being clear: the roles of speaker and addressee, and the physical manifestation of these roles as facets of one entity.

Descriptively, the exterior distinctions have been a hard nut to crack. Mere observation of natural usage does not give evident clues as to their exact function, and native speakers are typically not used to explaining the details of linguistic phenomena. However, helpful initial hints were provided by the *Demonstrative Questionnaire* (Wilkins 1999), an elicitation tool developed specifically for the detailed study of the extensional range of nominal demonstratives in exophoric spatial use and run in the Jahai setting in 2002 (Burenhult forth-



Figure 2a. 'Tadeh meat. — (Go) to ʔadeh. It's about to turn over, the one ʔadeh. To tadeh side.'

coming). The subsequent work reported on below has pursued two lines of approach: (i) analysis of the use of exterior demonstratives in natural conversation captured on video (see Section 4.3) and (ii) elicitation tasks designed specifically to probe their spatial characteristics (see Sections 4.4 and 4.5).

#### 4.3. *Exterior demonstratives in natural conversation*

This section exemplifies how exterior demonstratives are employed in natural Jahai conversation. The following snapshots (Figures 2a–d) are from one coherent sequence of a video recording made by the stream of Semlor, in the Hulu Perak district of the state of Perak, Peninsular Malaysia, in August 2003. A group of Jahai men are engaged in traditional cooking in the forest. They cut up an animal, collect bamboo tubes to be used as cooking vessels, fill the tubes with meat, cook the meat by placing the tubes in an open fire, and finally serve it on leaves spread out on the ground. The most experienced person of the group, a middle-aged man, is sitting in the middle of the scene, instructing the others what to do. The components of the interactional setting are dynamic, including alternating speakers, addressees, and referents. The middle-aged man begins by instructing a teenage boy sitting to his right to get up and fetch a bamboo tube with cooked meat from the fire burning to the man's left. In his exhortation, he refers repeatedly to the meat and its location with the speaker-anchored exterior demonstrative. The referent is located at the speaker's side and within his reach, and clearly outside his facet of the speaker/addressee dyad. The scene is illustrated in Figure 2a.



Figure 2b. 'To ʔpiʔ, to ʔpiʔ! Tpiʔ way!'

In response to the instruction, the boy walks over to the opposite side of the fire, taking the path behind the man's back, and gets one of the tubes with meat. He starts to walk back the same way but his path is blocked by another teenage boy, who instructs him to walk another way back, a path which would take him around the fire and in front of the man. This exhortation employs the addressee-anchored exterior demonstrative. The referent is the suggested path, pointed to by the new speaker and involving movement of the addressee away from the speaker. Speaker and addressee are facing each other. The scene is illustrated in Figure 2b.

A brief discussion follows about which path to take (Jahai food preparation is imbued with rules of conduct aimed at preventing the attraction of large predators, especially tigers). This is quickly interrupted by an exhortation by the middle-aged man which instructs the teenager who fetched the tube to simply carry it to the location where the meat will be served. The location, approximately two meters away from the speaker and pointed to by him, is on the opposite side of the speaker from the addressee's position. The speaker is facing away from the addressee. The exhortation employs the adverbial form of the speaker-anchored exterior demonstrative. This is illustrated in Figure 2c.

The teenager chooses the path behind the man's back and carries the tube to the location indicated. Moments later, he gives the tube to another young man who begins to split it open with a jungle knife. Using the addressee-anchored exterior demonstrative, the middle-aged man now instructs this young man where to place the opened tube. He wants him to put it as far away as possible on the bed of leaves (from the speaker's position), to leave room for the



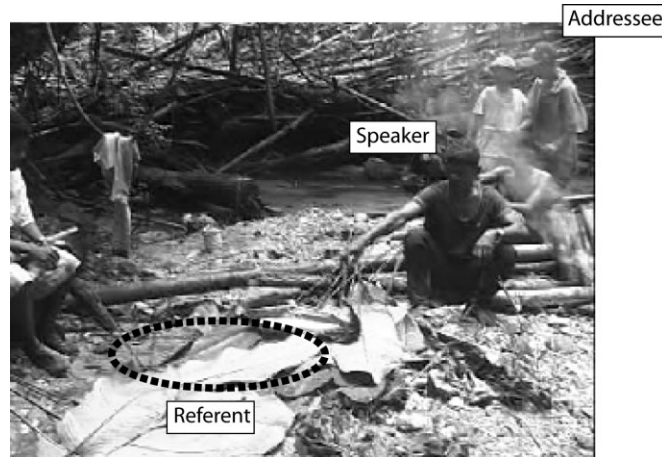


Figure 2c. *'To ʔadeh, to ʔadeh, to ʔadeh!'*

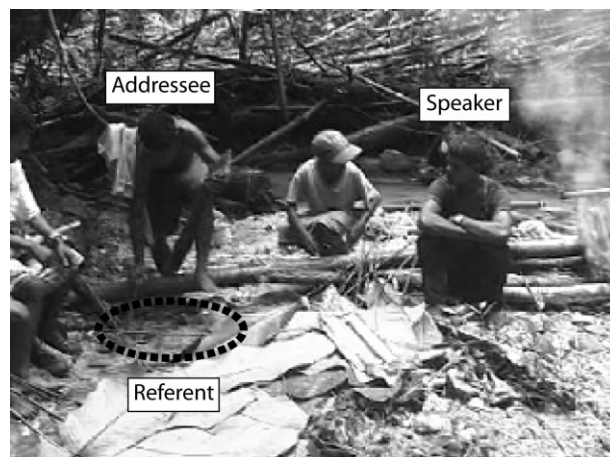


Figure 2d. *'Break it open. Then put it ʔɪɪʔ. To ʔɪɪʔ side. On ʔɪɪʔ outside.'*

meat. Speaker and addressee are about a meter and a half apart, turned in the same direction. The area of reference is right in front of the addressee. The speaker lip-points to the area referred to. Figure 2d illustrates this scene.

We have so far established the fundamental spatial properties of the exterior distinctions and observed how they may manifest themselves in natural conversation. But there are other parameters which also need to be pursued. For example, Figures 2a–d all exemplify situations where the referent is located

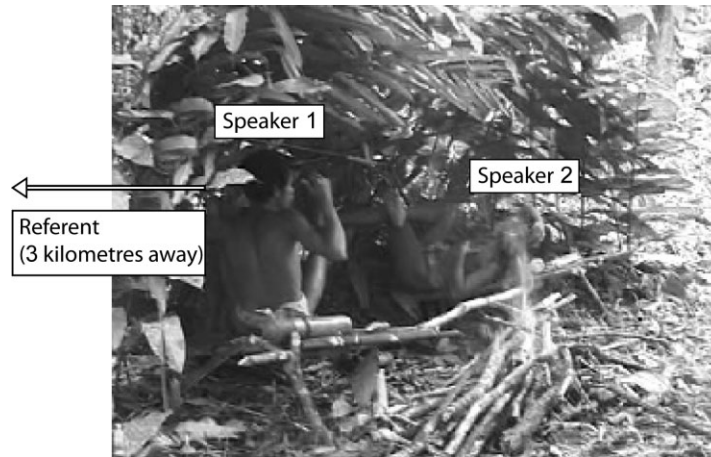


Figure 3. *Speaker 1: 'Let's go back here, like this, up there. Then to tadeh little waterfall. Hatim's waterfall, or what's it called now?' Speaker 2: 'Tji? Bɣbɔŋ's waterfall.' Speaker 1: 'Yes, tadeh Bɣbɔŋ's waterfall.'*

relatively proximally to the speech situation. Does greater distance between the referent and the speech situation inhibit the use of exteriors? Is visibility of the referent relevant? How does the facing of the respective interlocutors influence exterior usage? And which are the exact spatial limits of the exterior regions? These parameters are explored below.

There is ample evidence to suggest that the projecting regions associated with exterior reference extend infinitely in space. That is, distance and visibility are not relevant parameters. Most of the recorded examples of exteriors refer to what may be considered proximal locations or objects. But consider the following example, taken from a 2002 video recording of two men engaged in conversation while resting in a temporary rain shelter erected by the Banun river, in Hulu Perak (Figure 3). One of the men is talking about a hunting trip he would like to make in the surroundings and describes a suitable route. His description contains reference by means of the speaker-anchored exterior demonstrative to a place located some three kilometers upstream from the speech situation, away on the speaker's side. He is facing his interlocutor and is pointing over his own shoulder with his thumb. He is not sure about the name of the place, and the interlocutor intervenes with the correct place name, using the addressee-anchored form.

Not only is the referent located at considerable distance from the speech situation, but it is also invisible and otherwise perceptually inaccessible to the interlocutors. The example is not unique, and the greatest distance for which

exterior reference has been recorded is approximately 50 kilometers. The referent in this case was the adjacent state of Kelantan.

Note also the interlocutors' use of the two contrasting forms respectively, showing how the forms are mutually exclusive. What is *tadeh* to one interlocutor is *tɲiʔ* to the other.

At the other end of the distance scale, exterior demonstratives may be used to refer to very proximal objects, even the interlocutors' own body parts. '*Tadeh* ear of mine' will refer to that of the speaker's ears which at the moment of utterance is on that side of his or her head which is turned away from the addressee. 'Behind *tɲiʔ* back of yours' refers to a location behind the addressee's back and will be used if the addressee is facing the speaker. This shows that a core sagittal axis of the interlocutors' bodies forms the exact boundary of the speech perimeter.

The examples in Figures 2 and 3 seem to suggest that exterior reference is independent of the facing of the interlocutors. The search domains typically project away in more or less opposite directions from the speech situation on the basis of the location of the respective interlocutor on the speech perimeter, not their bodily orientation. However, in one type of conversational layout this can be overridden. When speaker and addressee sit next to each other, facing in the same direction, the two contrasting regions have a clear tendency to be skewed behind the backs of the interlocutors. Consider examples (1) and (2), which are exchanges recorded in a so-called photo-matching game designed to elicit strategies of spatial description in small-scale space (CARG 1992). The two players of the game (director and matcher) sit side-by-side facing in the same direction.<sup>10</sup> In the examples given here, the speaker-anchored exterior is used to describe the orientation of people in the photos towards a location behind the players' backs.

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10. Each game involves two native speakers, who through linguistic description disambiguate photographs of a static array of two objects. In most of the photographs, this array consists of an object with salient facets (a small plastic man) and one without facets (a small plastic tree), arranged in several spatial configurations with respect to each other on the horizontal plane. Other photos show two faceted objects (small plastic men) in similar configurations. One player (called the "director") is given a set of photos, from which s/he describes the scene shown in the photo in such a way as to enable the other player (the "matcher") to identify the correct photo from an identical set. The matcher cannot see the photo which the director is describing. To solve the task, the director must provide information disambiguating the position of objects in relation to each other (man and tree), as well as the orientation of featured objects (the man/men). The players sit side-by-side, and their respective sets of photographs are spread out in front of them, separated by a low screen. Matching games of this kind are ideal for prompting spontaneous native speaker discourse of direct relevance to the specific interests of the researcher. For a comprehensive account of Jahai strategies in solving such tasks, see Terrill & Burenhult 2008.

- (1) Director: *ba=?adeh, wih lawa? gaharu?*  
 GOAL=?adeh 3DU to.search.for aloes.wood  
 ‘Towards ?adeh. They are looking for aloes wood.’<sup>11</sup>
- Matcher: *ba=nh-joh tadeh*  
 GOAL=NOM-to.ascend tadeh  
 ‘Towards tadeh ascent?’
- Director: *ha?i?*  
 AFF  
 ‘That’s right.’
- (2) Director: *?o? tēh ba=?adeh hayi?*  
 3SG this GOAL=?adeh also  
 ‘This one also towards ?adeh.’
- Matcher: *ba=?adeh*  
 GOAL=?adeh  
 ‘Towards ?adeh?’
- Director: *ba=?adeh*  
 GOAL=?adeh  
 ‘Towards ?adeh.’

Note that both players use the speaker-anchored form *?adeh/tadeh*. This shows that each player perceives the relevant area of exterior reference to be on his respective outside of the speech perimeter. So, in side-by-side conversation, the speech perimeter (or conversational bubble) does not necessarily form between the interlocutors, but in front of them. The two asymmetries are perceived as coming together on the same side of the perimeter, even allowing both interlocutors to use the speaker-anchored form. The exterior regions merge or at least overlap behind the interlocutors’ backs, and the mutual exclusivity of the two forms is, in these cases, neutralized. These examples are unusual in the data: normally the distinct forms are retained also in side-by-side conversation. It is the posterior location and relative distance of the referent from the speech situation which makes the merger possible here. Further evidence of skewing of the search domains in side-by-side conversation is presented in Section 4.4.

#### 4.4. *Elicitation task 1: Judgment*

In order to probe the spatial parameters in more detail, two elicitation tasks specifically aimed at the exterior demonstratives (represented by their derived nominal forms *tadeh* and *tpi?*) were developed and tested in the field in 2003. These had three main goals: (i) to pin down the spatial characteristics of the

11. Aloes or *gaharu* (*Aquillaria* sp.) is a type of hardwood used to make incense. It is collected and sold by the Jahai. The imaginative description of the photo is typical of Jahai players accustomed to photo-matching games.

projecting search domains, (ii) to further explore the influence of the facing of the interlocutors, and (iii) to probe for spatial prototypicality in exterior reference.

Relying on native speaker judgment, the first task aimed at eliciting information as to the maximal extent of a sector outside each facet of the speech perimeter within which exterior reference is acceptable. In this task, the researcher asked consultants for their judgment in several trials where a single referent (a plastic cup) was placed at various points around the researcher (who thus enacted the role of speaker) and a consultant (enacting the role of addressee). Such elicitation was made with seven adult male native speakers of Jahai in the village of Sungai Banun, Hulu Perak, Peninsular Malaysia. All elicitation was done in Jahai.

The basic spatial layout was the same for all trials. The researcher and consultant were sitting at two meters' distance from each other, with the referent placed in one of 16 possible locations at a distance of one meter from the researcher (in the case of speaker-anchored reference) or one of 16 possible locations at a distance of one meter from the consultant (in the case of addressee-anchored reference). The 32 possible points of reference thus symmetrically formed two circles, one around the speaker and one around the addressee, each with a diameter of two meters. All elicitation was made in the exact same location, on the floor of a rectangular open-sided building measuring approximately 8 by 5 meters, with the basic layout remaining directionally identical throughout the whole set of elicitation sessions. The layout of the task is illustrated in Figure 4.

Each trial involved the placement of the plastic cup at one of the possible points of reference and the researcher asking the consultant "If the cup is placed here, can I say '\_\_\_ cup'?" The speaker-anchored form was tried for the full set of 16 points around the researcher, followed by the addressee-anchored form for the full set of 16 points around the consultant. Thus, in each trial, a +/- value was given for each point of reference with regard to acceptability of the forms.

Pointing to the referent was avoided. The task was primarily a judgment task with the aim of eliciting native speakers' conscious judgments about the correct usage of the forms, and not an experiment seeking spontaneous reactions. Thus, the researcher also encouraged each consultant to carefully consider and explain at which points, and why, the exterior form could and could not be used. Frequently the same point of reference was tried and discussed more than once, until the consultant gave a final judgment. Randomized placement of the referent was mixed with more systematic placement, e.g., clockwise, depending on the nature of the discussion. In most trials consultants had no trouble grasping the format of the task and would quickly give very specific judgments. In some sets of trials, however, a few consultants had difficulties understanding the ba-

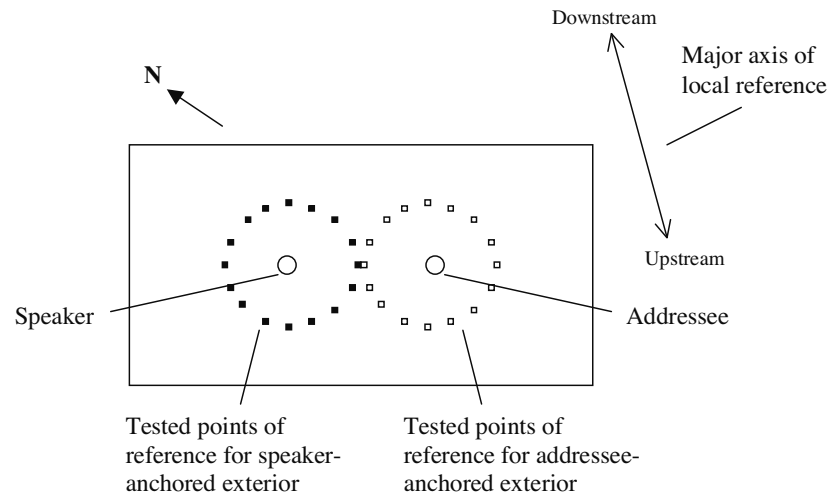


Figure 4. *The basic layout of the exterior elicitation tasks*

sis layout of the task and could not give precise judgments. More specifically, they saw themselves as external judges of the researcher's usage and did not understand that they were the intended addressee, a crucial aspect of the task. Such difficulties were easily identified and overcome by rephrasing the question into a quasi-spontaneous exhortation like "Hey you! Give me \_\_ cup!". After this consultants usually had no trouble giving a specific judgment.

An important question at issue was the influence of the facing of speaker and addressee. Therefore three different variants of the basic layout were tried with each consultant. In the first variant, speaker and addressee were sitting face-to-face. In the second variant they were sitting face-to-back (speaker in front in the case of speaker-anchored reference and addressee in front in the case of addressee-anchored reference). In the third variant they were sitting side-by-side, facing in the same direction. Thus in the first and second variants, speaker and addressee were on the same sagittal axis but on different lateral axes. In the third variant they were on the same lateral axis but on different sagittal axes. However, note that the location of interlocutors and the distance between them remained the same throughout the task, as did the 32 possible locations of the referent.

The results are given in Appendix I. As expected, consultants typically rejected the use of exterior forms for reference within the area between speaker and addressee but accepted it for reference to the regions outside the respective facets of the speech perimeter. This pattern is particularly apparent in trials where speaker and addressee were sitting face-to-face. Consultants were here

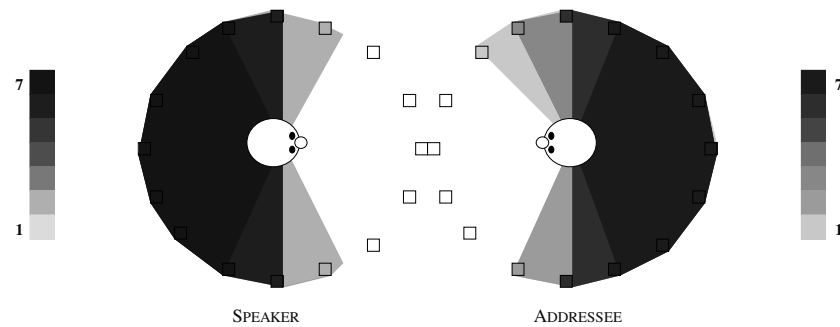


Figure 5a. *Summary of consultants' judgments of acceptability of exterior reference in face-to-face conversation. Shading indicates the number of consultants (1–7) who accept exterior reference to a given point.*

fairly consistent in their judgments. Six out of seven accepted exterior reference to those nine points which were on and behind the lateral axis of each interlocutor, i.e., within a 180 degree posterior sector. All seven of them accepted such reference to points within a slightly more narrow posterior sector. Five anterior points were consistently rejected for such reference. The pattern for the speaker-anchored and addressee-anchored form were virtually identical, underlining the symmetry of the system. The results of the face-to-face trials are illustrated in Figure 5a.

A similar distribution appears in the face-to-back trials, where one was sitting behind the other (speaker in front in the case of speaker-anchored reference and addressee in front in the case of addressee-anchored reference). With the speaker-anchored form, all consultants accepted exterior reference to four points forming a speaker-anterior sector; none accepted such reference to five points forming a speaker-posterior sector. The results are illustrated in Figure 5b.

In the case of the addressee-anchored form, all consultants accepted exterior reference to four points forming an addressee-anterior sector; none accepted it to four points forming an addressee-posterior sector. The results are illustrated in Figure 5c.

The side-by-side trials present a more varied picture. Some consultants found it difficult to make judgments in this setting. In the case of the speaker-anchored form, all consultants here accepted exterior reference to three points on and behind the lateral axis on the speaker's exterior side. This is paralleled in the addressee-anchored form by four points on and on both sides of the lateral axis on the addressee's exterior side. In both the speaker-anchored and addressee-anchored case, five consultants accepted exterior reference in an approximately

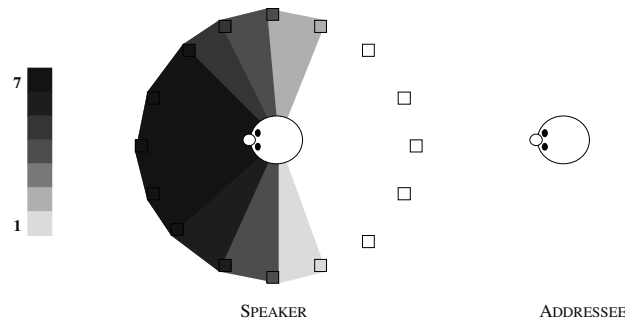


Figure 5b. Summary of consultants' judgments of acceptability of speaker-anchored exterior reference in face-to-back conversation. Shading indicates the number of consultants (1–7) who accept exterior reference to a given point.

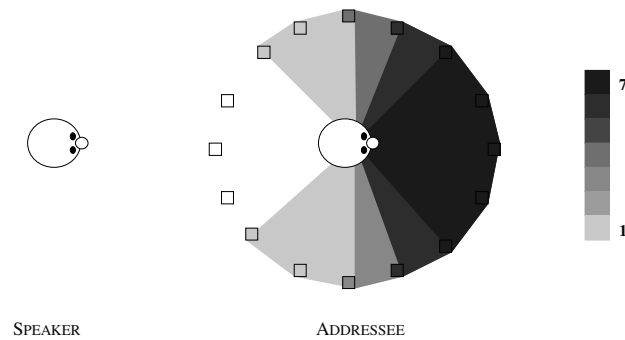


Figure 5c. Summary of consultants' judgments of acceptability of addressee-anchored exterior reference in face-to-back conversation. Shading indicates the number of consultants (1–7) who accept exterior reference to a given point.

180 degree sector whose limits coincide with an axis running intermedially between the sagittal and lateral axes and which is skewed posteriorly towards the exterior side of speaker and addressee respectively. The interior half of the anterior areas of speaker and addressee are dispreferred for exterior reference: in the case of the addressee-anchored form it was uniformly judged as unacceptable; in the case of the speaker-anchored form, only one consultant judged exteriors to be acceptable. The results are illustrated in Figure 5d.

The results point to some individual variation in judgments of acceptability, but it is clear that native Jahai speakers agree that exterior demonstrative reference is appropriate if the referential object is located within a sector outside each facet of the speech perimeter. The purpose of the task was to define in more detail the spatial extent of this sector, and a synthesis to be made of the



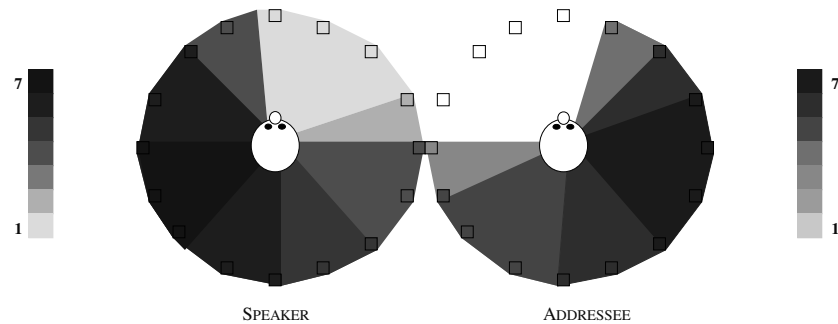


Figure 5d. Summary of consultants' judgments of acceptability of exterior reference in side-by-side conversation. Shading indicates the number of consultants (1–7) who accept exterior reference to a given point.

judgments is that for most consultants it involves an 180 degree angle or less. In those two variants of the task where speaker and addressee were on the same sagittal axis, the directional contrast of the two exterior sectors is particularly clear. Also, in these two variants the different facing of the interlocutors was of no relevance to the directions in which search domains projected. Recall that the cup was licensed for exterior reference at both posterior (face-to-face) and anterior (face-to-back) points as long as it was located in alignment with the interlocutors. However, those trials in which the interlocutors were sitting side-by-side show that this particular facing leads to a posterior skewing of the exterior sectors. This result parallels the usage observed in more naturalistic situations (see Section 4.3)

#### 4.5. Elicitation task 2: Exterior prototype

The second elicitation task was aimed at establishing whether there is evidence of any form of spatial prototypicality or ideal for exterior reference within the exterior sectors probed in the previous task. Unlike the judgment task, it did not primarily seek the consultants' conscious metalinguistic judgment of proper usage but rather their immediate quasi-spontaneous reaction to an instruction involving reference by means of the nominal exterior demonstratives. However, the spatial layout of the task was similar to that of the judgment task, and the location was the same. Researcher and consultant were sitting at a distance of two meters from each other, and 16 small stones (about the size of golf balls) were placed at the 16 points of reference around the researcher. Without looking at the stones and without any form of accompanying gesture, the researcher then simply told the consultant "Take \_\_\_ stone" (using the speaker-anchored exterior). This was intended to prompt the addressee to get up and take one

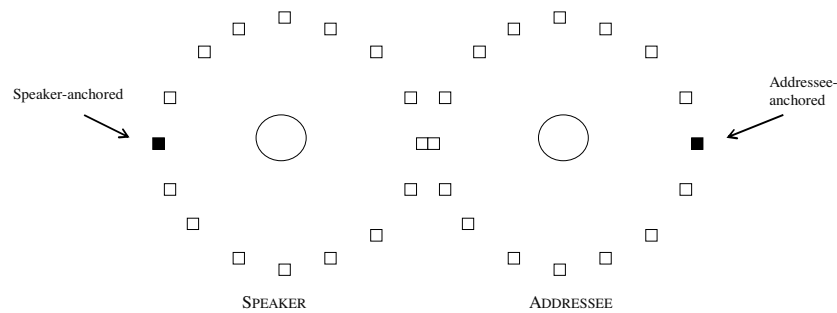


Figure 6. *Summary of the results from the exterior prototypicality task*

or several stones. The exhortation did not specify the number of stones to be picked up, since Jahai lacks number marking on non-human nouns, so consultants were free to pick up any number of stones. After that, the researcher and consultant changed place, the consultant now sitting inside the ring of stones, and the procedure was repeated with the addressee-anchored form. So instead of being asked to judge exterior reference to a single object placed in different locations, the consultant now had to choose between 16 competing possible referents.

Like the judgment task, three different variants of the basic layout were tried with each consultant in order to see if the facing of the interlocutors had an influence on consultants' choice: face-to-face, face-to-back, and side-by-side. Thus, each consultant provided six responses. The number of native Jahai speakers consulted in this task was six, all adult males. Most of these consultants also participated in the judgment task. However, the two tasks were not made in connection with each other.

The results of this task were entirely uniform. Without exception, consultants picked up only one stone, and, irrespective of the facing of the interlocutors, consistently that exterior stone which was exactly aligned with the two interlocutors. The pattern for addressee-anchored reference was identical to that of speaker-anchored reference. The results are summarized in Figure 6.

The prototype task, designed to probe for spatial prototypicality in exterior reference, appears to reveal notions of a canonical, ideal location for such referents. This invariably involves exact exterior alignment of the referent with the interlocutors. Note that the facing of the interlocutors is irrelevant: the preferred location is not skewed when interlocutors sit side by side.

#### 4.6. *Summary of elicitation tasks*

The spatial characteristics of exterior reference come out clearly in the tasks and the results correspond well to what such reference is like in natural conversation. Thus, the two search domains are spatially equal and project away from the speech perimeter on the basis of its speaker and addressee facets. Exterior reference is not possible for objects located inside the speech perimeter. Furthermore, side-by-side conversation alters the spatial configuration in that the speech perimeter may form in front of the interlocutors instead of between them, the two facets coming together on one side of the perimeter. Additionally, the tasks show that other types of facing, especially when speaker and addressee are seated face-to-back, involve an imagined speech perimeter which is not different from that of face-to-face conversation. That is, if one of the interlocutors is facing away from the other, the speech perimeter still forms between them. Note also that the exterior ideal explored in the prototype task is always exactly aligned with the interlocutors irrespective of their facing.

The tasks are revealing as to the spatial limits of the exterior sectors. While there is some difference in individual preference as to how wide these sectors are, it is clear that the search domains are projected fan-style and typically 180 degrees or less from each interlocutor. Importantly, the two exterior sectors do not divide the world outside the perimeter into two halves. They are deictically much more precise. For example, it is not possible to use an exterior demonstrative to refer to an object which is equidistant (or close to equidistant) from speaker and addressee (unless the interlocutors are side-by-side and the referent is behind them).

#### 4.7. *An intrinsic system*

As mentioned in Section 4.2, the exterior configuration is conveniently analyzed as representing an intrinsic frame of reference. This system of spatial coordinates is binary, locating a Figure with respect to a Ground on the basis of intrinsic asymmetries of the latter (Levinson 2003: 41–43). Specifically, an asymmetry of the Ground is used to project a search domain in which the Figure can be found. Spatial coordination of the Figure-Ground array is completely array-internal, as no external cues are used to map coordinates onto it.

Interpreting the speech situation as Ground requires us to spatially characterize its asymmetries. As we know, the speech perimeter has two such asymmetries: the speaker and the addressee. While representing spatial equals (i.e., extensionally equal sections of the perimeter), the two facets do not divide the perimeter into two halves. Instead, they cover smaller sections of it, so that there are sections of the perimeter which are unfaceted. Recall that there are parts of the area surrounding the speech situation which are not suitable

for exterior reference, typically those which are more or less equidistant from speaker and addressee. Furthermore, the two facets are not necessarily exact diametrical opposites on the perimeter. Recall the side-by-side situations. In these cases, the facets come together on one side of the perimeter. As we have seen in one case (Examples 1 and 2), they may even merge.

The exterior system passes Levinson's rotation tests identifying the intrinsic frame of reference (Levinson 2003: 52–53). According to these tests, an intrinsic description is falsified by rotation of the Ground object around its own axis, but not by rotation of the whole Figure-Ground array, or by rotation of the viewer around the array. Accordingly, an exterior description still holds if the whole Figure-Ground array is rotated. Also, full rotation of the Ground object (i.e., the speech perimeter with its two facets) renders an exterior description false.<sup>12</sup>

The test involving rotation of the viewer around the array requires some elaboration. This is because the exterior description is always applied from within the Figure-Ground array itself in a way which the rotation test is not designed to deal with. The canonical viewpoint (the person uttering the spatial description) is here represented by a facet of the Ground (the speaker), which by definition does not qualify as the array-external viewpoint to be tested. Indeed, a fundamental feature of the exterior description is that it is not designed to be applied from outside the Figure-Ground array. An imagined array-external viewer cannot describe the scene with the same proposition, because that description would immediately make such a viewer part of a different configuration, the layout of which would depend entirely on whom the viewer is talking to. However, if we imagine an external viewer judging the interlocutors' use of exteriors, descriptions judged as correct are not falsified by the rotation of the judge around the array.

The intrinsic analysis of exterior demonstratives makes some new demands on frames-of-reference analysis of intrinsic relationships. Whereas earlier work has recognized that there is crosslinguistic variation in the conceptual assignment of facets onto entities (Levinson 2003: 41, 76–84), the present analysis further proposes that such entities need not be physical wholes. Recall that the interlocutors are concrete facets of an otherwise imagined perimeter. Thus, it is argued that the construal of a Ground in an intrinsic relationship can involve association of distinct, concrete entities as facets of a larger entity whose

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12. Note that partial rotation of the Ground is possible to some extent, although it cannot exceed approximately 45 degrees, at which point the description becomes dubious. Such play in the search domain is typical of intrinsic descriptions (and arguably any spatial coordinate description); cf. *the ball is at the man's back*, where the description is not immediately falsified if the man is rotated slightly around his own axis. The important point to be made is that full rotation of the Ground definitely renders the exterior description false.

spatial coherence is purely conceptual, not physical. This opens up frames-of-reference analysis to conceptually more elusive spatial representations.

However, the most important point to be made is that the Jahai exteriors by all accounts are conveniently analyzed in terms of a spatial coordinate system. They encode semantically the location of a referent within a spatially determined search domain, and these spatial characteristics cannot be overridden by other parameters. This point is crosslinguistically significant, because it establishes the existence of demonstratives whose spatial encoding is inviolable.

#### 4.8. *Cultural correlates?*

The exterior demonstratives occur ubiquitously in all types of Jahai everyday conversation. They are employed for reference in leisurely gossip on the verandah, just as well as in excited exhortations during hunting. But one might wonder whether there is anything specific about Jahai interaction that would explain the development of such spatially specific and unusual demonstrative distinctions. A fundamental feature of exteriors is that they, unlike most other deictics, encode angular search domains. In effect, they encode linguistically the deictic component which would normally be manifested non-linguistically, e.g., through pointing (cf. Levinson 2003: 70). So one possible explanation is that development of the exterior distinctions is linked to situations where deictic gesture is either ineffective or inappropriate. There is no lack of such situations in Jahai interaction.

Much Jahai conversation occurs without eye contact. For example, group movement (a fundamental activity in the nomadic, foraging Jahai society) typically involves walking in a single line along narrow trails through dense rainforest. In this setting, where interlocutors do not have full visual access to each other's gestures, exterior demonstratives are ideal for reference along the path of motion and to the two most salient places of the motion activity, the points of embarkation and destination. Another relevant setting is the traditional sleeping place, the temporary lean-to. In Jahai camps, such lean-tos are placed side-by-side in a circle or half-circle, each lean-to being open on the sides and towards the inner "courtyard". A lean-to normally houses a nuclear family, husband and wife sleeping on each side with their children between them. Conversation here typically takes place at night, again with limited possibilities for interlocutors to have visual access to each other. Relevant referents from an exterior demonstrative perspective are the other dwellings and people on either side of an individual lean-to.

Perhaps even more relevant, manual pointing is taboo in a range of situations. For example, while travelling, it is inappropriate to point to one's destination. It is also unthinkable to indicate by pointing the place where one intends to go hunting, fishing, or gathering, for fear of revealing one's intentions to the po-

tential game, catch, or harvest. Needless to say, linguistically encoded angular search domains are helpful to compensate for such pointing restrictions.

Another relevant taboo is that of in-law avoidance. In Jahai society, a married person and his or her opposite-sex parent-in-law are not allowed to interact directly with each other. They cannot speak or give things to each other, or even look at each other, and they cannot eat together, for example. They are also not allowed to refer explicitly to each other in each other's presence and consequently cannot point to the other person or refer to him or her by name or even with a 3rd person pronoun. Any communication has to be indirect and administered by a third person, usually the spouse/child representing the point of connection in the in-law relationship in question. Ideally, this person should be physically located between the avoiding in-laws. In this situation, it is considered appropriate for one in-law to refer to the location of the other by means of the addressee-anchored exterior demonstrative, e.g., telling the intermediary 'Give this knife *?pi?*'. It is also appropriate for the intermediary to refer to the location of either of the avoiding in-laws with the speaker-anchored form: 'Give the knife to me and I'll pass it on *?adeh?*'. The relevance of speaker/addressee identity, of who is allowed to form an interactional bubble with whom, and of the contrasting directions of exterior reference based on the location of the interlocutors themselves, is striking in this context.

At this point it is only possible to speculate about potential cultural determinants in the development and use of the exterior distinctions. For example, in the contemporary Jahai material examined here, there is so far no evidence of a correlation between exterior use and absence of gesture (see Figures 2 and 3). But what is clear is that Jahai everyday conversation involves a range of situations where the exterior demonstratives are particularly useful.

#### 4.9. *Discussion*

This section has introduced and explored the first documented case of demonstratives which encode an intrinsic frame of reference. Natural conversational data, supplemented with specifically designed elicitation tasks, provide coherent and compelling evidence of demonstrative forms which encode semantically the spatial location of referents in relation to the deictic Ground on the basis of the intrinsic facets of that Ground, namely speaker and addressee. The clear spatial divisions revealed by both natural and elicited data show that this spatial encoding is rigid: for example, there is no evidence that it can be altered or relinquished due to discourse-pragmatic factors. Furthermore, exterior demonstratives are never used non-exophorically, e.g., as anaphora in discourse-internal reference.

One aspect of exterior demonstratives not explored here is their relation to other distinctions of the elaborate Jahai demonstrative system, e.g., which

forms take precedence over others in a given situation. What is interesting to note, however, is that the speech perimeter, whose significance in the exterior configuration is so evident, is of little help in explaining the semantics and usage of the other demonstrative distinctions. The four distinctions encoding accessibility vs. non-accessibility of the referent in relation to speaker and addressee are impossible to characterize in purely spatial terms (Section 4.1, Burenhult 2003, forthcoming). Like other distance-related systems (cf. Özyürek 1998, Enfield 2003), their spatial characteristics are prone to contextual and pragmatic influence, and they are frequently employed for endophoric (discourse-internal) reference. The two elevation-encoding forms, while purely spatial, reflect a referential configuration which is very different from the exterior one. Here, a global external asymmetry is used to locate the Figure in relation to the deictic Ground. This coordinate system represents an absolute frame of reference (see Section 3.1).

Thus, in Jahai, at least three hugely different functional dimensions of spatial deixis converge formally on a single syntactic slot. Recall that syntactically the eight demonstratives are mutually exclusive. Also, in conversation, the same referential situation may attract repeated demonstrative reference involving forms representing different dimensions. Speakers dynamically switch between the dimensions in order to achieve their goal of establishing shared knowledge, and their choices are determined by a range of pragmatic and contextual factors. These factors remain to be explored.

Finally, it is clear that this investigation of exterior demonstratives has benefited greatly from the complementary use of elicited and natural data. Some commentators on demonstrative research emphasize the superiority of “genuine spontaneous” data (Enfield 2003: 114) or “analysis of texts and by participant observation” (Dixon 2003: 107, endnote 13) over direct elicitation. The present work shows that focused elicitation tasks can be an invaluable companion in the analysis of natural demonstrative data. In this particular case, the demonstrative elicitation tool of Wilkins 1999 initially helped to identify an interesting problem, and the focused tasks presented in Section 4.4 and Section 4.5 have provided a systematic data set which not only supports the analysis of natural data, but also enriches and illuminates it.

## **5. Conclusions**

We are now in a position to draw some general conclusions.

First, space can be a fundamental parameter in the meaning of demonstrative forms. Recent research frequently questions the role of space for systems traditionally described as encoding distance distinctions, instead proposing discourse-pragmatic parameters to be the most fundamental ones (Hanks 1992, 2005; Özyürek 1998; Burenhult 2003) or at least to have great influence

on the spatial use of demonstratives (Enfield 2003). The present work makes it clear that there are indeed demonstratives which invoke angular search domains and whose meaning can therefore be described in spatial terms through frames-of-reference analysis. The exterior demonstratives in Jahai represent one such system. We can hypothesize that other spatial-coordinate demonstratives (Section 3) will display similar immunity to non-spatial parameters. They are also less likely to be employed endophorically.

Second, mapping the spatial categories of Figure and Ground onto the deictic scene has proved fruitful in analysing the spatial-coordinate demonstratives. It is a necessary prerequisite of the frames-of-reference analysis applied here and so helps in developing the typology proposed in Section 3. In fact, the exterior configuration explored in Section 4 provides evidence that Figure and Ground are conceptually relevant categories in the deictic context, something which has previously been taken for granted but for which there has been little formal support. Here, Jahai unusually displays formal manifestation of a faceted deictic Ground. The connection to Langacker's (1990: 319–320) theoretical characterization of the speech event as a composite phenomenon with facets is particularly interesting. But while Figure and Ground are analytical categories which may well be universally applied to spatial deixis in languages, it is clear that what constitutes the deictic Ground in the minds of speakers is not only subject to contextual variation (cf. Hanks 1992: 67–69) but potentially also to significant crosslinguistic and crosscultural variation.

Third, frames-of-reference analysis is applicable to several unusual demonstrative distinctions. On the basis of the presence of angular search domains we have isolated spatial-coordinate demonstratives as a semantic class. Making a fundamental distinction on the basis of where asymmetries in spatial relationships are found, and secondary distinctions based on what represents the asymmetry, we have developed a semantic typology of this class. Thus, systems with asymmetries external to the deictic Figure-Ground array are classified as representing an absolute frame of reference. Such external asymmetries may be represented by the vertical axis, or an axis based on some geophysical feature. Systems employing asymmetries internal to the deictic Figure-Ground array are classified as representing an intrinsic frame of reference. Such internal asymmetries may be represented by intrinsic facets of the interlocutors, of the speech situation as a whole, or of the referent. While fundamentally different, both classes may be found in the demonstrative system of a single language, as in the case of Jahai. Being conventionalized and grammaticalized spatial descriptors, demonstratives here provide particularly compelling evidence of which type(s) of spatial representation may be conceptually salient in a speech community, adding fuel to the debate of linguistic relativity in this domain.

Spatial-coordinate demonstratives, a crosslinguistically unusual phenomenon found in typically small and endangered languages, are relevant to ques-



tions of universal significance. Indeed, they form particularly informative reflexions of how the deictic scene may be conceptualized by users of human languages.

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*Abbreviations:* The following non-obvious abbreviations are used here: 3 3rd person, AFF affirmative; DU dual, NOM nominalization; SG singular.

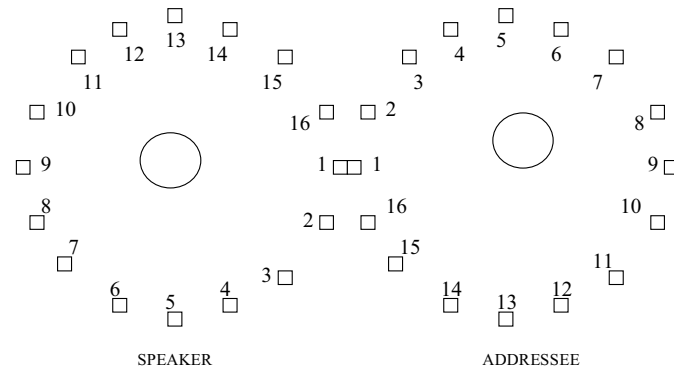
## **Appendix I**

Exterior judgment task data, with acceptability judgments (+/–) for each point of reference tested for the speaker-anchored (S) and addressee-anchored (A) exterior demonstrative forms and with three types of facing (FF: face-to-face, SS: side-by-side, FB: face-to-back). For clarity, the accepted points of reference of exteriors have been shaded. The numbering of points of reference is illustrated in Appendix II. Note that reference points 8 and 9 are consistently judged acceptable for exterior reference.

[illegible]

## Appendix II

Numbering of the tested reference points around speaker and addressee in the exterior elicitation tasks.



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