Gesture and signs through history

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One group of signs in French Sign Language (LSF) is described in the *Dictionnaire des sourds-muets* at the end of the 18th century as having in common the form of a cross, placed in front of the face. All of these signs have negative connotations. We identify the etymon of the signs as an emblematic gesture of hostility used by hearing people since the 15th century. Inherited from the hearing milieu, the gesture evolved into an important lexical family in use by the deaf in both LSF and its sister language, American Sign Language (ASL). At each step in the gesture's evolution, two conceptual mechanisms explain changes in both form and meaning: economy of articulation and metaphorical abstraction. We show that latent meanings have been invested in the signs' handshapes, placements, and movements, all of which were inherited from gestures of the hearing world.

Keywords: French Sign Language (LSF), American Sign Language (ASL), gestures, signs, emblems, etymology, lexical family, articulatory economy, metaphorical meaning

For some time, little attention has been paid to the relationship between gestures, those body movements accompanying speech, and the lexical units of natural sign languages of the deaf. On the one hand, researchers who have worked on co-speech gestures have largely avoided in depth analyses of sign languages, as sign languages constitute a domain that is too particular, perhaps too complex to penetrate. On the other hand, those who have specialized in analyzing sign languages have recoiled from creating any relationship between gestures and signs, as the term "gesture" has been used pejoratively throughout the history of deaf education when referring to the body movements characteristic of sign language. Contemporary work, fortunately, has begun to turn renewed focus on the analysis of gesture and sign from a unified perspective (e.g., McNeill, 1992; Armstrong, Stokoe, & Wilcox, 1995; Goldin-Meadow, McNeill, & Singleton, 1995; Liddell,

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2003; Goldin-Meadow, 2003; Kendon, 2004) and has accorded sign languages their place in the realm of human communication.

These works have largely focused on the most transparent relationships between gesture and sign language — including, movements of the head and face (McClave, 2001) and movements of the body (Emmorey, Tversky, & Taylor, 2000) — that seem to transcend communication in spoken or signed modalities. The process of lexicalization of signs from gestures has been broadly addressed in studies of deaf children unexposed to sign language (Goldin-Meadow, Mylander, & Franklin, 2007; Goldin-Meadow, 2003). Additionally, a review of the relationship between gestures and sign (Kendon, 2004) reveals that depictive or iconic gestures in particular tend to be the source from which signs emerge as they are used over time. Through a process of reduction, elaborate forms simplify to the most salient component parts as mutual understanding among users is built (Kendon, 2004, p. 308). Connections between specific gestures and lexicalized signs, though, have yet to be thoroughly explored, largely because there is little synchronic evidence of a sign ever having been a gesture. Through the vantage point of history, though, we are better able to capture more profound relationships than those superficially evident in synchronic analyses. In particular, gestures used by people who hear and speak constitute a rich collective of etymologies for the lexicon of sign languages. Though these relationships between gestures and signs oftentimes become less transparent over several centuries of morphological and semantic evolutions, establishing analogies allows us to better capture ways in which a manual, gestural lexicon is built.

To demonstrate this, we have chosen a form as one representation of emblematic gestures used by hearing people, mostly in Europe, and extend the analysis of the link between gesture and sign as it relates to two Western sign languages. Specifically, we will examine one class of signs in French Sign Language (LSF) and American Sign Language (ASL) inherited from emblematic and metaphorical gestures of the ambient mainstream (i.e., non-deaf) culture. Both LSF and ASL have an historical relationship to each other and each has a pool of historic sources beginning in the 18th century that, taken together, constitutes a wealth of records of sign evolution and change. Rich data can be found in these historic sources but these data have only been exploited to a limited extent (Frishberg, 1975; Stokoe, Casterline, & Croneberg, 1965; Wilcox, 2004) until now. We propose that by treating such classes of signs as lexical families, we are best able to capture the fluid, dynamic and yet highly sequential nature of language evolution and change. We complement our analysis of these historic works with field work in the deaf communities of France and the U.S. to better capture the etymologies of signs heretofore undiscovered.

Crossed index fingers in French Sign Language of the 18th century

Several years before the French Revolution, the Abbé Jean Ferrand founded a small school for deaf girls in the city of Chartres, one hundred kilometers outside of Paris. In his *Dictionnaire des sourds-muets* (*Dictionary of Deaf-Mutes*), written around 1785 but published only in 1896, Ferrand mentions one particular class of signs that is not documented in any of the contemporary collections of French Sign Language. This class is characterized by a base form — where the index fingers are crossed over each other and placed somewhere near the face — and is documented in entries for six signs transcribed as MENSONGE "lie" or MENTIR "to lie", FAUX "false", MALIN "malicious", DIFFICILE "difficult", and ERREUR "error". All of these forms have in common a negative semantic association. We argue that this association is inherited from an emblematic gesture of the hearing milieu of 18th century Europe. Indeed, it is a gesture that would be the root source from which many forms, both in LSF and ASL, became lexicalized.

Figure 1. *MENSONGE/FAUX* (left). *MALIN/DIFFICILE* (right). Illustrations by Pat Mallet. Signs from 18th century LSF, reconstructed from the Abbé Ferrand's text.

In Table 1, Ferrand's written descriptions are carefully reproduced (and translated into English from the original French).[1] Due to the similarities in these entries, four of the signs can be collapsed further into two polysemous signs: MENSONGE/FAUX "lie/false", which was produced by crossing the index fingers over the mouth (Figure 1, left), and MALIN/DIFFICILE "malicious/difficult", similarly articulated but placed at the forehead (Figure 1, right).

The separation of MENSONGE and MENTIR in two entries is problematic. It is worth noting at this point that dictionaries of sign languages to this date have always used the written words of spoken languages — in our case, French and English — to represent translations of lexical units that do not have a corresponding written form. Also a problem in historical analyses of spoken languages, the reliance on written language in this case is doubly challenging as the designation

Table 1. Class of signs with crossed index fingers *Dictionnaire des sourds-muets* (Ferrand circa 1785).

Sign	Form of the sign	Ferrand's gloss
MENSONGE	"Cross the index fingers and shake them over the mouth" "*Se croiser les index et les agiter sur la bouche*"	"Words that go sideways" "*Paroles qui vont de travers*"
MENTIR	"Turn the two index fingers, one over the other, in relation to the mouth" "*Tourner les deux index l'un sur l'autre vis-à-vis la bouche*"	"The truth which leaves sideways" "*Vérité qui sort de travers*"
FAUX	"Cross the index fingers over the mouth and shake them" "*Se croiser les index sur la bouche en les agitant*"	"The truth leaves the mouth sideways" "*Vérité qui sort de la bouche de travers*"
MALIN	"Cross the index fingers over the forehead, the place of the spirit" "*Croiser les index sur le front, siège de l'esprit*"	
DIFFICILE	"Cross the index fingers over the forehead" "*Croiser les index sur le front*"	
ERROR	"Cross the index fingers and shake them in front of the forehead" "*Croiser les index qu'on agite devant le front*"	"A lie in the spirit" "*Mensonge dans l'esprit*"

for the signed form is both written in *and* translated into a second language. To further complicate the analysis, these translations can play a significant role in conventionalizing the production of the signs and have served to influence, and even change, users' interpretations of the signs' meanings. We maintain, accordingly, that only the actual usages of signs allow us to discern their precise meaning, since the meanings do not necessarily correspond to the English and French words as they are used today.

An additional concern in relying on the written translations relates to the morphology of the source language. In this example, Ferrand's descriptions of the signs MENSONGE and MENTIR are almost identical; what we know from contemporary sign language use is that the distinctions between nouns, verbs, and adjectives can be, but are not necessarily, made in the morphology of the forms themselves. Thus, a sign like LIE in contemporary ASL is used to refer to both the act of lying and the actual lie itself without any change to the physical structure of the sign. Ferrand's text is slightly more complicated because he uses different phrases to describe each entry for MENSONGE and MENTIR. But in Ferrand's entry TROMPER "to make a mistake", the author refers the reader to the entry MENTIR and at the same

time copies the text from his entry MENSONGE. We conclude, then, that Ferrand's descriptions in his entries MENSONGE and MENTIR refer to one and the same sign. The interchangeability of these written translations is additionally confirmed in a later work written by the Brothers of Saint Gabriel (2006 [1853–1854], p. 99) who combine one entry under the heading "*mensonge, mentir, menteur*". We maintain, then, that the entries in Ferrand's dictionary are synonyms equally translatable as *lie*, *liar*, or *to lie* depending on the context in which the signs were produced.

Through morphological processes of composition and derivation, the class of signs with crossed index fingers is found in no less than twenty entries in Ferrand's dictionary. Six compound signs use the sign MENSONGE/MENTIR: ACCROIRE "to delude", IMPOSER "to impose", TROMPER "to make a mistake", CALOMNIER "to slander", FRIPON "rascal", VÉRITABLE "true" (MENSONGE/MENTIR followed by negation); four compound signs use FAUX: ABSURDE "absurd", FALSIFICATION "forgery", SUPERSTITION "superstition", SUPPOSER "to speculate" (FAUX preceded by DIRE VRAI "tell true"); two compound signs use MALIN: DIABLE "devil" and EMBÛCHE "trap"; three compound signs use DIFFICILE: FACILE "easy" (DIFFICILE followed by negation), COMPLICATION "complication" and INCONVÉNIENT "inconvenient"; three signs use ERREUR followed by JAMAIS : ABJURER "to forswear", FALSIFIER "to falsify", INFAILLIBLE "infallible" (ERREUR followed by JAMAIS); and finally, one derivation of the sign MALIN figures in two entries: SE DÉFIER "to defy" and SE MÉFIER "to mistrust".

From these entries, we pose some questions: what is the origin of these signs? What place do they have in the history of LSF? Do they merely represent signs that have disappeared without a trace or can we establish ancestral links to contemporary signs? What can we gather from these diachronic changes? And finally, what do we make of the curious polysemous signs that are grouped under one sole sign like MENSONGE/FAUX and MALIN/DIFFICILE?

Prelude to the signs: An emblematic gesture

Already established in the lexicon of 18th century LSF, the form characterized by the index fingers placed in an oblique cross was an emblematic gesture that had been used in the hearing world over vast geographical areas during long periods of history. The gesture first appears in a 15th century painting by Hans Holbein as a torment addressed to Christ by the Jews (Figure 2). Transmitted to subsequent generations, in the 20th century, the gesture was identified as being used in various European and Middle Eastern regions. In Alsace, in the east of France, the gesture is considered an insult that is usually accompanied by torments or mockery (Schmitt, 1990, p. 397). In Provence, in the south of France, children use

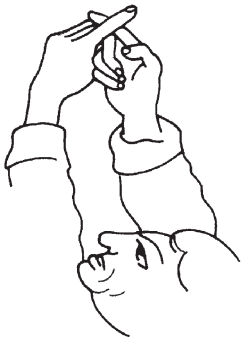

Figure 2. Injurious gesture, 15th century. Illustration Y.D.

the gesture to show the end of a friendship (Carénini, 1991, p. 117). Outside the boundaries of Europe, the gesture also carries negative meaning. In Yemen, it is used as a sign of enmity (Battesti, 2001). In Japan, speakers use the gesture to express disagreement or negative judgment (Sugita, 2007).

While there is no way to definitively prove a direct connection between one or all of these gestures and signs, it is certainly the case that in these documentations of gestures commonly used throughout Europe, the Middle East, and the Near East, crossing the index fingers signals a mark of hostility towards another person. The symbolism of this gesture can be described as a metaphoric conceptualization of the fingers directed "*sideways*" (Ferrand, *op. cit.*).

The negative meaning associated with the act of crossing something, specifically the index fingers, is additionally salient in its contrast with another gesture where the index fingers are brought together, side by side. The parallel positioning of the index fingers, here, represents a proximity or similarity just as the crossing symbolizes an antagonism or negation. In Naples, as well as in other parts of Italy, paralleled index fingers can indicate complicity, equality, sameness, and friendship (de Jorio, 2000), and in the Middle East, they indicate friendship (Figure 3). Among the Cistercian monks, the gesture means "same" (Barakat, 1975, p. 119 in the U.S.; Y. Delaporte, field observation in France) as it did in the sign language used by the Plains Indians (Tomkins, 1969). The gesture was subsequently borrowed by French and American deaf people to refer to close relatives: for example "*FRÈRE ["brother"]: the index fingers of both hands held horizontally, tap each other by their external side, as in the sign PAREIL ["same"]*" ("*FRÈRE: les index des deux mains tendus horizontalement, les frapper l'un contre l'autre par leur côté externe, comme pour le signe PAREIL*") (Blanchet, 1850, p. 71). The Abbé Sicard, director of the Parisian institution for the deaf in the early 19th century (1808, 1, p. 57), saw in the form "*a sign of identity to designate one common source*" ("*signe d'identité, pour désigner une source commune*") (Figure 4). From these two opposing gestures, the

Figure 3. Gesture "very good friends". Lebanon (Srage, 1991).

Figure 4. Ancient LSF sign FRÈRE (Pélissier, 1856).

crossed index fingers and the parallel index fingers, deaf people in France and by inheritance, America, have constructed a series of lexical units.

From gesture to sign

We return to the signs described by the Abbé Ferrand. Placed on the mouth, the crossed index fingers produced the sign MENSONGE/FAUX; placed on the forehead, they produced the signs MALIN/DIFFICILE and ERREUR: the same cross over the mouth in MENSONGE symbolized to the author "*words that go sideways*", the cross over the forehead represented the lack of integrity in a person who conducts himself with malice. The crossing of the index fingers in front of the mouth contrasts with the rectilinear movement of the index finger from the mouth in the sign TRUE. As in the case of the sign VÉRITABLE "true", Ferrand depicts the form as: "*lie not, make the index fingers leave the front of the mouth completely straight*" ("*mensonge pas, et faire sortir tout droit les index de devant la bouche*"). And when Ferrand (*op. cit.*, p. 80) glosses the sign CRIME "crime" as "*malice of the heart*", there is no doubt, though he does not so explicitly state, that the sign was produced by crossing the two index fingers (as in MALIN) over the heart.

The fact that deaf people produced several independent signs by placing one form of the hands in different locations demonstrates the capacity to exploit metaphorical associations with the body and tie them to manual forms that then combine and recombine to create new meanings. Indeed, this process is morphological and actively responsible for the creation of signs in both LSF and ASL (Cuxac, 2000; Liddell, 2003; Taub, 2001; Wilcox, 2000). Different parts of the body are vested, in effect, with latent meanings that participate in the construction of these signs to produce metaphoric meaning. And because the place of articulation is a salient and independent component of sign languages' phonology,

it can be extracted, so to speak, and treated as an independent, meaningful unit of a gesture's form.

If, in the 18th century, MALIN was located on the forehead, it is because the collective representations of Western culture considered this area to be the place where intellectual functions, both positive and negative, were housed. It is at this location, for example, that contemporary French and American deaf people sign PHILOSOPHY, KNOW and INTELLIGENT as well as CRAZY and FOOL (or in LSF DÉBILE "dumb"). If the old LSF sign MENSONGE was placed on the mouth, it is due to the fact that this area was deemed to be devoted to communication, in both positive and negative senses. If CRIME "crime" was placed on the heart, it was due to the fact that that area of the body was associated with emotion; it is in this place that French deaf people locate the signs AMOUR "love", PITIÉ "pity", ANGOISSE "anxiety" and VEXATION "humiliation" and the American deaf place FEEL, GUILTY and BE EMOTIONALLY TOUCHED.

During the 18th century, at each of these three locations, the forehead, mouth and heart, the crossed index fingers selected negative meanings: not intelligence but malice; not truth but falsehood; not love but criminal sentiments. It is because of this dual component of the construction that we can tease apart the forms and conclude that the negative connotation is associated expressly with the crossed indexes. Of course, the sign languages' morphological processes of inflection and derivation are robust and productive. Consequently, we only see aspects of this original gesture in subsequent generations of signs as the forms themselves have undergone significant changes. We will examine these changes more closely in the following sections.

Following the gesture: The fate of crossed indexes in French and American sign languages

The LSF sign DIFFICILE

In the beginning of the 19th century, DIFFICILE is described by the Abbé Sicard (1808, 2, p. 129): "*Bring the two index fingers to the forehead, roll them one over the other*" ("*On porte les deux index au front, en les roulant l'un sur l'autre*"). The same description is given by the Abbé Jamet, founder of a school for the deaf in Caen, Normandy, in his dictionary manuscript (circa 1830a): "*roll the two index fingers one over the other against the forehead*" ("*faire rouler les deux index l'un sur l'autre contre le front*"). It appears that the sign DIFFICILE/MALIN documented by Ferrand, "*cross the index fingers on the forehead*" ("*croiser les index sur le front*") in the 18th century, evolved so that the hands were given to rotate. This rotation

is not innovative; it was already present in the structure of the sign MENTIR: "*turn the two index fingers one over the other close to the mouth*" (*supra*, section *Crossed index fingers in French Sign Language of the 18th century*) ("*tourner les deux index l'un sur l'autre vis-à-vis la bouche*"). The inflected movement intensifies the value of this sign.

In Ferrand's work, one sign conveyed the concepts "difficult" and "malicious". In Sicard and Jamet, the sign was noted only as "difficult" (the notion "malicious" constituted a different form not worth describing here). Thus, two French words *difficile* and *malin* correspond to two distinct signs after Jamet. It is worth noting at this point that one consequence of the education of deaf children by hearing instructors was a forced standardization of lexical items in sign language to match those of written French or English. We know of many documented examples of signs that were split from their original form to accommodate two lexemes in the local spoken language. For example, the French words *frère* and *sœur* "brother/sister" originally constituted the same sign but later split into two distinct forms FRÈRE and SŒUR. Likewise, the bifurcation of the ancient polysemous sign PÈRE/MÈRE into two distinct signs PÈRE and MÈRE (Delaporte, 2000, p. 91) is a direct result of the pressure to accommodate a written language that distinguished these relationships by two separate lexemes. It is not surprising, then, that signs such as DIFFICILE/MALIN evolved into two distinct lexical items.

Clearly, signs are also subject to ordinary processes of evolution and re-semanticization apart from such extralinguistic pressures as accommodating written forms. In this manner, the old sign DIFFICILE, consisting of simultaneously rolling the index fingers over each other at the forehead, evolved into two contemporary signs. The first derivation maintains the original form but has an evolved meaning: the sign described by the Abbés Sicard and Jamet today means "*to think with perplexity*" (Figure 5) implying "*a difficult question to resolve*" (Y. Delaporte, field observation). The preservation of a form that is not very economical (both fingers

Figure 5. Contemporary LSF sign RÉFLÉCHIR AVEC PERPLEXITÉ "To think with perplexity". Illustration Y.D.

mobilized in a complex movement at a location high on the body), contrasts with the derivation that we will examine next.

The second derivation of the old sign DIFFICILE retains the original meaning but exhibits a changed form. This sign is described by Jamet in another version of his dictionary manuscript (circa 1830b) written after his first description of DIFFICILE as "*the index is pressed against the forehead by its external side, we bend the end of it quickly, several times*" ("*l'index étant appuyé contre le front par son côté externe, on en replie vivement, plusieurs fois, le bout*") (Figure 6). It is possible that this sign is derived from a gesture used in Naples in the 1830s and described by de Jorio (2000) as the "index finger curved like a scythe and dragged across the forehead from left to right" (pp. 209–210).[2] Though this gesture does not exist in contemporary French circles, it is possible that the sign DIFFICILE as described in Jamet's first dictionary eventually simplified under the influence of the gesture described by de Jorio. In the case of this second version of DIFFICILE, only one index finger moves and the rotation of the wrists has disappeared. The new movement need not be solely ascribed to ease of articulation, though. Bending the index in such a way results in a hooked configuration — a form whose metaphoric meaning is well attested in LSF and is ordinarily mapped to signs conveying hardness, acuity, and intensity as in the signs DUR "hard", FER "iron", ÉLECTRICITÉ "electricity", PIQUER "to sting", MÉCHANT "mean", JALOUX "jealous", and VIOLENCE "violence". In ASL, we see a similar pattern where the hooked index or the hooked index and middle fingers are present in the signs HARD, IRON, ELECTRICITY, STING, MEAN (a regional variation used in the Midwest [E. Shaw, field observation]), WITCH, and the non-initialized sign JEALOUS. The metaphor underlying the change in form of the sign DIFFICILE can also be attributed to the hearing gestural community where negative connotations of bent fingers, for example in the form of a claw, are well-known (Delaporte, 2007, p. 426).

Figure 6. Ancient LSF sign DIFFICILE, reconstructed from the texts of the Abbés Sicard and Jamet. Illustration P.M.

Figure 7. Contemporary French sign DIFFICILE. ©IVT.

Much later, the index finger was moved along the length of the forehead while bending and extending several times: see the contemporary LSF sign DIFFICILE (Figure 7). The addition of this lateral movement has been ascribed to the image of a wrinkled brow, "*bodily reaction that is produced when one encounters a difficulty*" ("*réaction corporelle qui se produit lorsque l'on rencontre une difficulté*") (Bouvet, 1997, p. 74). The interpretation of the hooked index of the sign, in this case, appears to be a reinterpretation or remotivation of the sign's origin.

What to make of the polysemous MALIN/DIFFICILE?

We return to the sign MALIN/DIFFICILE as described by Ferrand, where the metaphor of crossed index fingers placed on the forehead conveys the meanings "malicious" and "difficult". This polysemy is sometimes strange; the genesis of the signs is a direct result of the combination of metaphorical meanings of the handshape, movement, and locations on different parts of the body. All metaphoric forms are by definition polysemous before they becoming actualized in concrete, commonly used signs. The meaning of the signs of focus in this lexical family remains consistent with what motivates their form, that is, the crossed index fingers in front of the forehead. They could be translated equally as *tortured spirit, filled with malice*, *evokes agitation*, or *the contortions of the spirit that must resolve a difficulty* (cf. French *remue-méninges* and English *brainstorming*). The same relationship drives a gesture used in Sicily among hearing people (Oliveri, 1997, p. 100) where crossing the index fingers is used to designate "*a wild and extravagant person*" (Figure 8). A French sign, PENSER À MILLE CHOSES EN MÊME TEMPS (Y. Delaporte, field observation) is founded on the same metaphor and means "*to think of a thousand things at the same time*" (Figure 9). It differs from Ferrand's DIFFICILE only by a

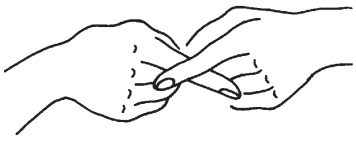

Figure 8. "A wild and extravagant person". Sicilian gesture. Illustration Y.D. from Oliveri (1997).

Figure 9. The LSF sign PENSER À MILLE CHOSES EN MÊME TEMPS. Illustration Y.D.

circular movement that seems to intensify the sign's meaning. This sign also symbolizes the agitation of the spirit. Equally, we can imagine that the French language influenced the relationship between the words *malin* and *difficile*, well attested in the current expression "*ça n'est pas malin*" which means "*that is not difficult*". This connection is retained by the authors of these dictionaries.

The LSF sign MENTEUR

In the 19th century, one sign is translated by several authors as *mentir* "to lie", *menteur* "liar", or *mensonge* "lie" (we treat these as one sign, labeled MENTEUR to ease reading). It is described as the "*Action of tracing, the index of the right hand, the length of the mouth from right to left, an oblique line, to express that a person of whom we speak does not go straight, and whose expressions and gestures announce falseness*" ("*Action de tracer, de l'index de la main droite, le long de la bouche, de droite à gauche, une ligne oblique, pour exprimer que la personne dont on parle ne va pas droit, et que ses expressions ou ses gestes annoncent la fausseté.*") (Sicard 1808, 1, p. 518), "*Pass the index sideways in front of the mouth*" (Jamet, circa 1830a). The sign is illustrated in Pierre Pélissier's work, a deaf teacher at the Parisian school for the deaf in the mid-19th century (Figure 10).

Figure 10. Ancient LSF sign MENTEUR (Pélissier, 1856).

Despite the similarity of these glosses, "*words that go sideways*" (Ferrand, *op. cit.*) and "*to express that a person of whom we speak does not go straight*" (Sicard, *op. cit.*), a relationship between the sign LIE and the family of signs with crossed indexes is not immediately apparent. In light of a recently discovered work that documents an intermediary form of this sign, we are led to conclude that LIE, too, derives from the crossed index gesture. This work is the *Catéchisme des sourds-muets* "Catechism for Deaf-Mutes" by the Abbé Laveau (1868), founder of the school for the deaf in Orléans, France. The sign MENTEUR is described there (p. 26): "*two index fingers cross in front of the mouth, from the right they are directed toward the left,*

and the left toward the right" ("*les deux index se croisent devant la bouche, le droit se dirigeant vers la gauche, et le gauche vers la droite*") (Figure 10). The original sign MENTEUR displays a changed form while keeping the motif of the cross: the two index fingers no longer crossed over each other, as in MENSONGE from Ferrand, but crossed during the course of their movement. French deaf people assimilated a gesture that was borrowed from the hearing world and modified it to serve a structural function particular to LSF. These signs no longer resemble the image of a cross that is fixed and does not move (which is at the heart of the gesture from whence the signs came).

All signs in LSF that associate the idea of antagonism, do so in the form of a cross. More broadly, the crossing movement of two articulators, be they fingers, hands, or arms, is mapped onto generalized notions of refusal, negation, and suppression as attested by the French expression *faire une croix sur quelque chose* "renounce something that is wished", or more literally, "to make a cross over something". What is most interesting to us and relevant to this analysis is that these cultural associations are also attested in the local sign languages. The French sign ANNULER "to cancel", like the American sign CANCEL, is produced by the right index finger tracing a cross over the left palm, capitalizing on this very image of making a cross over something to negate it. Among the deaf in France, a traced cross in space represents the sign JAMAIS "never" (Figure 11). This sign is the ancestor of the American sign NEVER[3] and is also the root of the LSF signs INCROYABLE "unbelievable", INSUPPORTABLE "insufferable", IMPOSSIBLE "impossible", all signs that are negated adjectives.

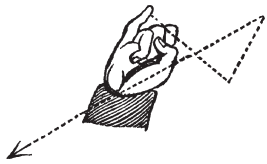

Figure 11. LSF sign JAMAIS "never" (Pélissier, 1856).

In addition to the signs we have already mentioned, the sign CONTRAIRE "opposite" (Figure 12) exhibits a crossed movement in addition to its crossed form. The sign MENTEUR from Laveau (Figure 13) could thus be described as the sign CONTRAIRE transferred to the mouth.

The transformation of a sign that mobilized two hands (Figure 13) to a sign realized with one hand (Figure 10) is a new example of an evolutionary tendency called Weak Drop (Padden & Perlmutter, 1987) where the non-dominant (or weak) hand in a two-handed sign gradually becomes irrelevant in the production of the sign. This tendency is widely documented in LSF (Delaporte, 2004, p. 136)

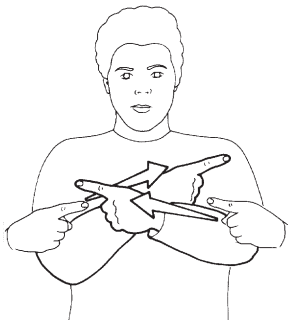

Figure 12. Contemporary LSF sign CONTRAIRE. ©IVT.

Figure 13. Ancient LSF sign MENTEUR from Orléans (Laveau, 1868).

and in ASL and has already been seen to be at work throughout the course of the history of DIFFICILE (*supra*). That the sign with two hands had been described in 1868 by Laveau in Orléans, while the sign with one hand had been used since 1808 as noted by Sicard in Paris, should not surprise us: this is likely a result of geographical variation where older signs tend to be maintained much longer in the countryside than in capital cities (Delaporte, 2005, pp. 7–8, and, e.g., Woodward, 1976). Incidentally, the two-handed sign described by Laveau remains in use in the U.S. as the sign COMPLICATED — a more specific semantic instantiation of the original translation "difficult". In contrast to previous comparative work on ASL and LSF (Woodward, 1979), we have found several older LSF signs that continue to be used in ASL while long since being abandoned by French deaf people.

An additional complication in the history of LIE might corrupt this erstwhile smooth evolutionary path. Examples from the hearing gestural community allow us to better explain what otherwise might appear anomalous. Beginning in the middle of the 19th century, the Parisian authors describe the sign MENTEUR but note the place of articulation as the nose rather than the mouth: "*pass transversally [the index] under the nose*" ("*passer transversalement [l'index] sous le nez*") (Blanchet, 1850, p. 86), "*pass the finger under the nose*" ("*passer le doigt sous le nez*") (Brouland, 1855), "*pass the index under the nose*" ("*passer l'index sous le nez*") (Lambert, 1865, p. 281). It is in this form that the sign is perpetuated today in France (Figure 14) and in some dialects of ASL (E. Shaw, field observation). The relationship between the nose and telling lies is largely present in Western culture through gestures, words, and expressions. An engraving by Brueghel depicts an old custom whereby slanderers were obliged to be taken by the nose and traipsed about in public (Carénini, 1991, p. 104). The common expression "*I see your nose growing*" is stereotypically delivered by parents to children who tell lies. This concept was later popularized by the fictional character Pinocchio whose nose elongated each time he told a lie. As a physical manifestation of subconscious thought,

a liar is believed to betray himself by touching, rubbing or scratching his nose. Though these beliefs have not been substantiated by actual data examining the gestures of deceivers, Hocking and Leathers (1980) note that people's conceptions of the gestures liars use were mainly hand-to-face gestures such as these.

Figure 14. Contemporary LSF sign MENTEUR. ©IVT.

All these acts and beliefs about these acts can be considered to be cultural relics and have been found in the languages of deaf people from various countries. They are, for all intents and purposes, lexical borrowings from their hearing environs. In Spain, MENTIRA and in Ethiopia, MEWASHET (Pinedo Peydró, 2000, p. 570, and E. Shaw, field observation, respectively) both mean "to lie" and are produced with the index finger brushing the tip of the nose, as in the ASL sign FALSE. In Portugal, MENTIR "to lie" is produced with the index finger rubbing the side of the nose (Vieira-Ferreira, 1991, p. 465). The Bulgarian sign LÊJA "to lie" is comprised of the index and the middle fingers oscillating in front of the nose (Dzangozova, Moceva, & Stajkov, n.d., p. 307). In LSF, an old sign DUPER "to fool" was produced by tapping the nose with the index (Jamet, circa 1830b) and in ASL, an older sign FOOL is produced by pulling the crooked index finger down the length of the nose. In Marseille, France, TRICHER "to cheat" mimics the elongation of the nose (Y. Delaporte, field observation), exactly like the Swedish sign TROMPER "to make a mistake" (Fondelius, 1978, p. 103). Finally, transferred across the Atlantic to ASL, the association of the nose with lying is exhibited in two regional dialects where the signs CHEAT and ROB are produced by rubbing the radial side of the extended index and middle fingers against the side of the nose (Shroyer & Shroyer, 1984)

We see, then, that what has caused the lifting of the sign MENTEUR from the chin to the mouth or nose cannot be entirely attributed to the symbolism of *speaking* the words of a liar. Instead, it appears the sign was at least partially attracted to an area close to the nose where, in Western culture, there is an association with

the act of lying. The sign MENTEUR could equally be explained as having been drawn to this place of articulation as a result of the cultural association. This is a clear example of the phenomenon of paronymic attraction, long attested in spoken languages as in the French word *savoir* "*to know*" from the Latin *sapere* "*to have the knowledge*" and originally written *sçavoir* by attraction to the Latin *scire* "*to know*". One instance among many, the case of MENTEUR shows that the history of signs can obey complex mechanisms we see operating in spoken languages.

Two lineages of signs in LSF arose from the two-handed MENSONGE described by Laveau (Figure 13). In the first, which we have just described, a sign consisting of both hands moving, was replaced by a sign where only one hand moved. In the second ancestral line, the movement that was produced on the frontal plane became displaced along the perpendicular plane of the body in a manner that made the sign more economical by avoiding the inconvenient twisting of the wrists. This last lineage of signs is responsible for the contemporary signs ERREUR "error" and AVOIR TORT "to be wrong" (Figure 15). In the latter sign, the index finger is bent in a hook — a form that we have already signaled as carrying negative connotations (*supra*, section on the LSF sign DIFFICILE). The meanings "error" and "to be wrong" are semantically closer to "false" than "liar" which might help explain its link to the original polysemous sign MENSONGE/FAUX.

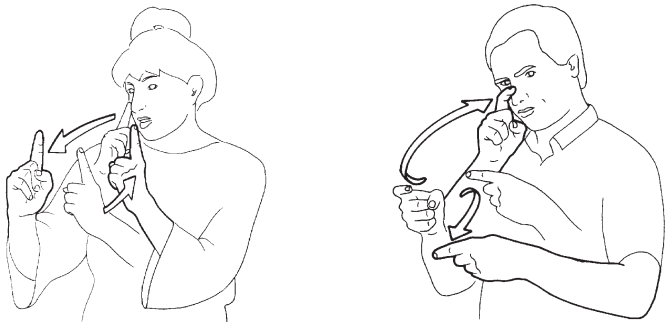

Figure 15. Contemporary LSF signs ERREUR (left) and AVOIR TORT (right). ©IVT.

Yet another contemporary sign in LSF, MENTEUR (Figure 16), blurs the ancestral lineage of this class of signs but upon closer examination, can also be considered related to the crossed index gesture. It is a regional sign that had been used in Bordeaux (Y. Delaporte, field observation) and stands in contrast to Ferrand's sign MENSONGE. While the group of signs in LSF and ASL that derived from MENSONGE was realized near the mouth or nose, the sign from Bordeaux was produced on the forehead. This placement suggests that a lie was somehow conceived by a person's spirit, which was conceptualized as housed in the head, before it was expressed through the mouth. Essentially, two different ideas of truth, and by association,

deceit, were propagated throughout the history of LSF and ASL. The first consists of interpreting truth as words that leave the mouth in a straight line (*supra*, section on the LSF sign MENTEUR); this metaphor continues to drive the contemporary ASL sign TRUE where the index finger departs from the mouth. The second notion consists of interpreting truth as thoughts that leave from the spirit in a straight line. We see the second lineage in the works of the Brothers of Saint Gabriel (2006 [1853–1854], p. 167) and Laveau (1868, p. 46) where the sign VRAI "true" is described as moving away from the forehead. This is also shown in the watermark of Ferrand's citation (*op. cit.,* p. 258) for the sign TROMPER, in the sense of "to cheat someone" or "to lie to someone": the two index fingers cross as in MENTIR and then point alternatively "*towards the forehead of a person to make the lie enter his spirit*" ("*vers le front d'une personne pour faire entrer le mensonge dans son esprit*"). The latter interpretation of truth and falsehood was a variation unique to Bordeaux that never became widely used; it constitutes the sole known trace of the sign in the 20th century.

Figure 16. LSF sign MENTEUR, Bordeaux. Illustration Y.D.

The polysemy of MENTEUR/FAUX in LSF

We must now return to the fact that notions of deceit and falsity have long been conveyed by one and the same sign. The polysemy appeared for the first time in Ferrand (Table 1). It is also included in the Brothers of Saint Gabriel (2006 [1853–1854], p. 66) under the entry FAUX which refers the reader to the entry MENTIR. Similarly, in Lambert (1865, p. 75) the legend reads "*faux, menteur*" in the entry for the same sign. Interestingly, the Abbés Sicard and Lambert use the entry MENTEUR, signifying, at least to some extent, the written French word *menteur* in places in their respective dictionaries where *faux* more closely approximates the given sign's meaning. For example, SENS "meaning" followed by MENTEUR was translated as "*figurative meaning*" (Sicard, 1808, p. 362); FLEUR "flower" followed by MENTEUSE referred to "*artificial flower*"; FIGUIER "fig tree" followed by MENTEUR meant "*wild*

fig tree"; PEUR "fear" followed by MENTEUSE referred to a "*scarecrow*" (Lambert, 1865, pp. 245, 345, 232). Clearly, in these examples we see that the actual meanings of the compounds, depending on the context, should not be literally translated as *liar* but as *false*. The notation of these signs could easily mislead readers to literally interpret the signs' meanings simply because of their illusory translations. In our analysis, then, it is necessary to closely inspect the semantics of the written word selected by the authors to translate the sign, in addition to the forms themselves, when deciphering a sign's history. In these examples, an artificial flower or a fig tree whose fruits cannot be eaten or a scarecrow — a word that Littré (1863–1869) defined as a "*thing or person much less terrifying than it seems*" — function as the term *lie* implies. Just as the figurative meanings of compounds like SENS MENTEUR perplex hearing learners of sign language, figurative meanings of French and English phrases equally perplex deaf students of these written languages when translations are taken literally.

By the 20th century, the index finger passing under the nose definitively took the meaning "liar" while the meaning "false" transferred to an entirely different sign whose form was also issued from a borrowed gesture of hearing culture called "the horns" (because of the likeness of the raised index finger and thumb to actual horns). Exactly as the notions "difficult" and "malicious" diverged into two distinct signs (*supra*, section on the LSF sign DIFFICILE), the split of FAUX/MENTEUR is likely a result of the institutionalization of deaf children where polysemous signs like FAUX/MENTEUR were altered and then propagated as two separate forms. As we have already discussed, to make the signs of the children's natural language conform to the conceptual decoupage of written French, two separate forms were developed and assigned distinct referents, likely by the hearing instructors who directed the schools.

The descent of an American sign from MENTEUR/FAUX

It is well known that one of the linguistic sources of ASL is LSF, introduced to American deaf people by Laurent Clerc (1785–1869), a deaf professor at the Parisian school for the deaf and co-founder of the first American school for the deaf in Hartford, Connecticut with Thomas Hopkins Gallaudet. Among the myriad of signs imported to America from Clerc's hands was a lexical family of signs related to the crossed indexes. We will first consider those signs formed by the index finger passing horizontally in front of the mouth that, like their French counterparts, also had the meaning "lie" or "false" depending on the context. This polysemy inherited from LSF is documented in Long (1910, p. 116).

The same author describes another sign referring to "*a less heinous falsehood, a fib, or softens the accusation, and is used in preference to* LIE *when speaking of*

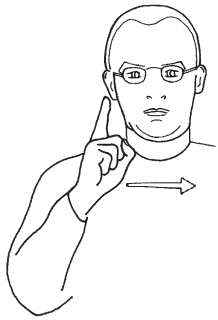

Figure 17. FALSE. Illustration Y.D. from Higgins (1923).

imitations or false material". The sign described here differs from its ancestor only in the orientation of the index which, in this case, points to the ceiling. The sign is also described by Higgins (1923, p. 30) under the entry FALSE: "*Right vertical index palm leftward pushed across the lips from right to left*" (Figure 17).

The movement later reduced to a flexing of the wrist while passing the index finger obliquely in front of the nose. Partly due to pressures of articulatory economy, the transfer of the hand from the mouth to the nose is at least partially explained by the metaphorical association of lying with this part of the body, as was already seen in France beginning in the middle of the 19th century several decades before Clerc's departure to the New World. It is possible that the evolutions occurred independently in LSF and in ASL, which would add to the richness of Western notions of the nose as a metaphorical zone of deceit.

The polysemous sign LIE/FALSE later split into two separate signs LIE and FALSE (Figure 18). The frequent realization of LIE on the chin and not in front of the mouth is due to a common phonological change known to occur in both ASL and LSF whereby signs produced on or near the face drop to the chin (Frishberg, 1975). Remarkably, the explanations of LIE by the American authors — "*words diverted instead of coming straight*" (Sternberg, 1994, p. 309), "*the finger indicates that a person is speaking out of the side of the mouth when telling a lie*" (Costello, 1994, p. 486) — are identical to the Abbé Ferrand's, who also described it as "*words that go sideways*". In contemporary France, this etymology of MENTEUR has long since dissipated from the consciousness of its users. Again, we continue to see older LSF signs preserved in regional and ethnic dialects of ASL, a finding that contrasts with previous cross-linguistic research on these two languages (Woodward, 1979; Woodward & Desantis, 1977; Erting & Woodward, 1975).

The second class of signs in ASL derived from the crossed index fingers and depending on context, can be translated as *complicated* or *difficult* (Figure 19). This sign is even more deeply anchored in LSF history. In terms of meaning, it integrates well with the lineage of signs issued from Ferrand's DIFFICILE/MALIN (Figure 1). In

Figure 18. Contemporary ASL signs: one variation of LIE (left) and FALSE (right). Illustrations Y.D.

terms of form, the sign is almost identical to the one Laveau described where both of the crossed index fingers moved (Figure 13). COMPLICATED differs from Laveau's sign only by the bending of the index fingers into hooked handshapes — a change we have already seen in the history of the LSF sign DIFFICILE and equally influenced by the metaphor of the hook (*supra*, section on the LSF sign DIFFICILE). The unambiguous proximity of this sign to Laveau's MENTEUR suggests that Clerc imported it to the United States from a sign used in a rural region of France, much older than the sign more frequently used in Paris at that time. Incidentally, this was also the case for the evolution of an unrelated sign, FATHER (Delaporte, 2006, p. 147).

A variation of COMPLICATED/DIFFICULT (Figure 20), seen in use in Maryland (E. Shaw, field observation), provides additional confirmation of this sign's history. This sign seems to be directly inherited from the LSF DIFFICILE, only lowered from the forehead to the base of the face due to the same phonological change we see in LIE. This variation is also in use in LSQ and is glossed DIFFICILE (Bourcier & Roy, 1985, p. 117).

Figure 19. Contemporary ASL sign COMPLICATED/DIFFICULT. Illustration Y.D.

Figure 20. ASL sign COMPLICATED, Maryland. Illustration Y.D.

Conclusion

The lexical family that we have discussed here was formed from a small number of morphological and semantic elements in addition to non-linguistic transference of cultural notions of the body. The first gestural borrowings were placements of articulation on the body (forehead, nose, mouth), handshapes (crossed and parallel index fingers), and movements of the hands (crossing of index fingers, bending of index fingers into hooks). The second set of borrowings consists of the cultural conceptions of difficulty, malice, lies, and deceit. All of these elements continued to recombine throughout the last two hundred years to produce a series of diverse, and sometimes illusory, lexical units in both LSF and ASL.[4] To our knowledge, this notion of a lexical family familiar to etymologists in spoken language, has only been applied cursorily to sign languages where forms have been compared synchronically such as Poizner, Klima, & Bellugi's (1987) proposal of morphological families behind directional verbs like ASK.

In light of the case we have presented here, the history of sign languages seems now to be as complex as that of spoken languages. Concerning morphological changes, the derivation of LIE (Figure 18) from its gestural etymon (Figure 1) is as impressive as that of the French word *eau* "water" from the Latin *aqua*. In terms of semantic changes, the derivation of PENSER À MILLE CHOSES EN MÊME TEMPS (Figure 9) from the same offensive gesture used by hearing Europeans, is no less surprising than that of the French word *tuer* "*to kill*" from the Latin *tutari* "*to protect*". The complexity of these origins renders useless tentative interpretations of the roots of signs founded on features considered in isolation, outside a broader cultural and gestural context. This transfer of gestures into the development of lexical items is one further indication that gestures, in this case, emblematic and metaphoric, have the communicative potential to not only become lexicalized but also be divided and recombined into other innovative forms. The compositional capacity of gestures, in these instances, strongly suggests that they are more like linguistic forms than previously allowed. This transfer and development is one further indication that they have the communicative promise to become lexicalized in (sign) languages.

At each step in the evolution of these signs, two conceptual mechanisms permit us to explain the changes of form and meaning. The first mechanism is articulatory economy. The rule of least effort of exertion is an evolutionary tendency that causes forms, be they spoken or signed, to be produced with the greatest ease and speed. Here, the passage of a sign from two hands to one (Figures 6 and 10), the lowering of the sign on the face (Figures 18, left and 20), the suppression of a wrist rotation (Figures 6 and 15), and the mobilization of the hand instead of the arm are all instances of the operation of articulatory economy.

The second mechanism at work in our examples, the vesting of metaphorical meanings in different parameters of signs such as their handshapes, placements of articulation, and movements, is arguably more powerful than articulatory economy. At each phase in a sign's evolution, gestural and cultural metaphors have the potential to influence the forms of signs and can even transcend boundaries between different lineages: we saw this in the index finger that evolved into a bent hook in two separate lineages in the French sign DIFFICILE and the American sign COMPLICATED. These metaphors can resurface in different points of the genealogical tree, while one might presume them to already be extinct. For example, the attraction of the French sign AVOIR TORT "to be wrong" (Figure 15) and the American sign FALSE (Figure 18, right) to the nose is an instance where the link to hearing gestures from which the signs derived remained latent, or at least undocumented, for extended periods of time.

The respective weights of these two evolutionary tracts in the formation of a new sign can only be analyzed in hindsight. That is, we could not predict that the index finger passing over the mouth in the old ASL sign LIE would later be attracted to the metaphorical meaning vested in the nose for the sign FALSE, and then lowered to the chin by articulatory economy to produce the modern sign LIE (Figure 18, left). These processes are influenced by linguistic constraints but also by cultural environments where the caprices of signers are highly erratic.

In sum, the comparison of signs with the gestures of hearing people allows us to capture a slew of etymological forms that have been exploited by deaf people to use in their language. Besides the gesture of crossed index fingers, we briefly alluded to other lexical families like the parallel index fingers whose close positioning symbolizes the narrowing of a social relation, as well as the mocking gesture consisting of the hands configured as a set of horns. These classes of gesture also generated families of a vast number of lexical items (Delaporte, 2007, p. 601). It appears, then, that there exists a rich collection of associations, be they cognitive, cultural, or both, that is primarily responsible for the form and the meaning of lexemes in these sign languages.

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Notes

1. All subsequent French texts are translated by Emily Shaw.

2. We thank Adam Kendon for drawing our attention to this gesture.

3. The evolution of the flat handshape in the ASL sign NEVER from the raised little finger (the manual letter 'J') in the LSF JAMAIS is likely due to a removal of the French initialization from the American form. We see a relic of the initialized handshape in an old variation of the ASL sign THAT'S IMPOSSIBLE where the thumb and little finger are extended and brush over the non-dominant palm in the form of a cross.

4. It is highly probable that other gestures or signs belong to the same lexical family that we have explored here. We thank the reviewer of this article for drawing our attention to the ASL sign PUZZLED, which is produced by the index finger bending into a hook as its back is drawn to the forehead. It is possible that this sign is linked to the gesture cited in de Jorio (2000, pp. 209–210).

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