

**Deciphering Upper Paleolithic (European), Part 2:
Maximal Graphematics and Correspondences to
a Reconstruction of Spoken UP(E)—
Summary of Phememic-Semantic Discovery Procedures**

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Abstract

In Part 1, I showed how to identify and begin a decipherment of European Upper Paleolithic geometric signs as a protolanguage, UP(E), which crystallized during the Magdalenian period, ca. 15,000 to 10,000 BC. The present study shows how this preliminary grapho-semantic decipherment of UP(E) can be mapped against a reconstruction of ‘primordial language’ (PL), including its ‘phememes’ and a hundred word stem lexicon developed by the linguist Mary LeCron Foster (1978). Assuming the validity of Foster’s reconstruction, this cross-mapping procedure results in differentiating the four basic UP(E) semes into 24 (4X6) semes, each corresponding to a canonical geometric sign. There are 24 symbols for articulating transformations of sacred, creative process. This reconstruction I designate the ‘maximal hypothesis’ for geometric UP(E).

At the same time, the cross-mapping suggests how to reconstruct phonemic components of geometric UP(E). Results of this new analysis include (a) the discovery of the lexical stem equivalents for the previously identified graphic signs and corresponding sememes of UP(E); and (b) the identification of the paradigmatic phememes and phonological operation rules for generating the two-syllable stems that correspond to each UP(E) grapho-semantic field. About fifty words of geometric UP(E) are postulated based on Foster’s PL stem lexicon.

As distinct from geometric UP(E), some fifty remaining PL stems in Foster’s lexicon appear to be root words in spoken UP(E). These roots involve semantic fields for social values such as altruism, childcare, bravery, foraging and exchange prowess, and harmony and social propriety. They also address valued everyday skills and technologies as well as shamanic healing practices. Thus, spoken UP(E) appears to constitute both a ‘spiritual’ and ‘cultural’ protolanguage. In sum, about ninety words of spoken UP(E) can be reconstructed.

The remarkable convergences between Mary LeCron Foster’s (1978) PL stems and my basic decipherment of geometric UP(E) reinforces the validity of the respective analyses.

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INTRODUCTION

1. In Part 1, I showed how to identify and begin a decipherment of European Upper Paleolithic geometric signs as a protolanguage, UP(E), which crystallized during the Magdalenian period, ca. 15,000 to 10,000 BC. I presented a 'basic hypothesis' for the decipherment of geometric UP(E), including identifying four marking motif clusters, that were mutually inter-defining based on structural similarities and oppositions in their geometric shapes. The four clusters have overall semantics signifying 'center inward', 'contact interrupting sacred, spirit energy', 'branch and unfold,' and 'flow'.

2. In this study I will show a way to map this grapho-semantic decipherment of geometric UP(E) against the reconstruction of 'primordial language' (PL), including its 'phememes' and a hundred word stem lexicon developed by the linguist Mary LeCron Foster (1978 and subsequent studies).

3. In attempting to reconstruct primordial language, Foster discovered the gesture- iconicity model of meaning. "The motivation of the reconstructed symbols depends upon a gestural iconicity between manner of articulation and a movement or positioning in space which the symbol represents. Thus, the hypothesis presented here implies that early language was not naming in the conventional sense but representation of one kind of physical activity by means of another, displaced in time but similar in spatial relationships (1978:78)." Again, Foster observes that "phoneme and morpheme are isomorphic in PL" (84). Rather than speak of phonemes, Foster uses the term "phememe" for the basic 'gesture-sounds' of PL. Foster's principle of gesture- iconicity is strikingly analogous to the principle of graphic iconicity, which appears to structure UP(E). Thus, Foster's reconstruction of PL appears directly relevant to my reconstruction of geometric UP(E). Indeed, Foster infers a "probably mid to late Paleolithic horizon" for PL (86).

4. If so, the geometric UP(E) protolanguage has three mediums, marking motif or writing (visual gesture), signing (hand gesture), and speech (aural mouth gesture). In each case the sign denotes a manner of movement (process, positioning) in the world or in the self (spirit, soul) that is the same as the manner of movement by which the sign itself is produced.

5. Foster (1978) identified seventeen (17) primordial consonants or "phememes": four stops p, t, c = tʃ, and k; seven fricatives f, θ, s, s̃ = ʃ, c̃ = ç, x, h; the nasals, m, n; the glides w, y;

and the liquids l, r). [Foster (1992) subsequently excluded /kw/ and /xw/ from her original proposal for PL as being trisyllabics from a later time, and added to PL /h/ and /?/.]

6. I suggest restricting Foster (1978) PL roots to the form "CVR" having a two consonant stem configuration with any consonant in combination with a resonant (m, n, l, y, r, w, also called semi-vowels, or nasals, glides and liquids), separated by a prothetic non-phememic vowel. This assumption constitutes a further reduction of Foster's 103 stem "canon," eliminating several three consonant stems and six single consonant stems. As Foster later proposed, the single consonant stems may have existed as survivals of pre-UP stages of language development.

7. Further, Foster observes that "the semantics of such stems is primarily verbal and words belonging to other form classes are usually derived from such verbal bases (86)." This is equivalent to my discovery that geometric UP(E) is essentially verbal in nature.

8. I have reviewed Foster's 1978 root lexicon for correspondences to the grapho-semantics of geometric UP(E). Numerous matches are easily detectable. Many of Foster's PL roots have meanings similar to those I proposed for the UP graphic signs. These matches open a way to further differentiate the basic grapho-semantics of UP(E) as well as suggest the phonemic, or more precisely, the 'phememic' correlates for the UP(E) graphemes.

9. I proceeded to make an initial rough list of PL stems that might be matched up to UP graphemes in the grapheme cluster, which may be designated A (center), B (bifurcate), C (branch), and D (flow), respectively. The list consists of forty-eight of these stems. If the single consonant phememes found in these stems are listed out, this reveals that the forty-eight stems are composed from a group of seven stops and fricatives, c, c̃, t, p, θ, s, and x [xw later excluded] as well as the resonants (m, n, w, y, r, l). A tally of the frequency of each phememe not surprisingly shows that the resonants constitute the most frequent phememes, occurring 7-14 times each. Although each of phememes of the non-resonant group occur only a few times, they appear to fall into four pairs /c-c̃/, /p-t/, /θ-s/, and /x-xw/, with three of the pairs occurring 5-7 times each. Considering these latter consonants as pairs, they then occur about as frequently as some of the resonants.

Thus, if the PL lexicon does contain UP(E) stems, then the resonants and the four pairs of stops are likely candidates for the basic differential phememes of UP(E). As I will now show the four non-resonant consonants, /x/, /p/, /s/ and /c/, one from each pair, actually appear to be the

four critical differential phememes belonging to roots that have a semantics matching, respectively, the 'center, bifurcate, branch, and flow' grapho-semantic fields of UP(E).

THE SIGN-CLUSTER-D PHEMEMICS

10. Most stunning is the fact that several stems in PL designate kinds of "flow" and, thus, correspond precisely to the fourth grapho-semantic field of UP, "to flow". Thus a hypothetical phememic reconstruction of spoken UP(E) can begin with these 'flow' lexemes.

11. Two PL stems, *c-r and *c-y, which Foster (1978) designated "Flow II" and "Flow I", respectively denote a 'spring-like riverine, streaming, sap' kind of flow and a 'rain, flood, overflow, drip' kind of flow. These two sememes can be mapped against geometric UP(E) semantics of "flow", which include the running angles and meanders of riverine flow and the vertical zigzags of lightning rain flow. This suggests /*c/ as a critical differential phememe for the UP(E) cluster-D with its overall semantics of "flow."

12. Among all the other stems containing /*c/ in Foster's lexicon, only *c-w (= revolve, spiral, whirl, curl) seems relevant to denote a semantics corresponding to the "D" grapho-semantic field, because of the many curl, arc, and spiral signs in UP(E) art, which seem to designate something similar to "flow," as pointed out by Marshack (1977). This sememe of the D-cluster was missed in Harrod (1987) and can now be added in.

13. Thus, three PL stems, *c-y, *c-r, and *c-w fit the three semantic axes of the semiotic square of UP(E). The *c-y kind of "flow" (= rain, flood, overflow, drip) is more like an "irruptive" kind of flow, thus belonging on the axis with the B-semantics. The *c-r kind of "flow" (= 'spring-like riverine, streaming, sap') is more like a channeled or contained kind of flow, thus on the axis with the "A" semantics. The *c-w kind of "flow" (= revolve, spiral, whirl, curl) is more like a kind of plant-like unfurling motion, and thus belongs on the axis with the C-semantics.

14. If so, the D-grapho-semantic field would have been co-articulated with the four paradigmatic phememes /*c/, /*w/, /*r/, and /*y/, with /*c/ as the key differential feature.

15. Two of these paradigmatic phememes are capable of being combined two at a time in six different ways. Thus the *w-r, *w-y, and *r-y roots also belong to the D-semantic field, as well as any reversal permutations. The D-semantic field would then comprise at a minimum six

primordial UP(E) roots. The related /*c~/ stems are also possible candidates, although those in the Foster PL lexicon seem tangential in semantics. Table 6 lists Foster's PL root lexemes and their meanings for each of the six permutations.

16. Lacking the key differential feature /*c/, the *r-y stem falls between *c-r and *c-y in meaning, namely "flow forth, flow away from, emit," that is, a "flow" that is somewhat between the contained flow of *c-r and the irruptive flow of *c-y. Similarly, the *w-r stem, which denotes "wind, spring, blood, life, essence, spirit," denotes something that falls between a contained "flow" and an uncontained "whirl, curl, spiral" motion. The sixth of the basic "flow" roots, *w-y, has meanings such as "go away, straight, pursue, attack, seduce, wander, change, bend round, plait, blood vessel," and its reverse, *y-w = "sea, river, connect, bind, unite, round, spherical, groove, nest." While the two roots *w-y and *y-w on first glance seem distant from the key differential characteristic of the D-semantics, the two forms, positive and reversed, share in common a semantics, which is, remarkably, that of a meandering, undulating motion. This was the term I had hypothesized as the overall seme for the 'flow' cluster of UP(E) glyphs. Diagram 9 summarizes the cluster D-phememic-semantic reconstruction.

THE SIGN-CLUSTER-C PHEMEMICS

17. The preceding analysis of "D" phemo-semantics leads to the hypothesis that each of the other three poles of semantic fields of graphematic UP(E) are similarly structured by a fourfold paradigmatic set consisting of a key differential phememe and three resonants, which when combined two at a time generate six primordial lexemes (nuclear and contextual semes) for each pole, A, B, C, as well as D. It remains to map these out.

18. I have proceeded by a trial and error variation method and reliance on the structural semantic oppositions underlying the semiotic square of UP(E) already in hand (see Part I) to work out the paradigmatic phememes belonging to each of the other three fields ("branch," "center," and "bifurcate"). They follow the same pattern as the *c stems, which led to the realization that their respective resonants (y, r, w) belong to their opposing paradigmatic sets. Thus, proceeding to the C-semantic field ("branch"), the key differential phememe, as evidenced by *s(e)l (=blossom, expand, open up) and *θ (e)l (=branch, sprout, twig, fork) is /s-θ /, where /θ / is a variant of /s/, and the corresponding resonants are /l/, as shown in *s(e)l and *θ (e)l; /w/, derived from the /w/ axis via *c-w, and a third resonant, which, as suggested by *n(e)w (=new,

new born, rise, grow), is /n/. Thus the paradigm set for the 'branch'-semantic field is /s-θ /w/l/n/. See Table 5 and Diagram 8 for the PL lexemes of the 'branch'-semantic field.

19. Similarly, it is possible to reconstruct the cluster A-phememic field and then the cluster B-phememic field, continually comparing the possibilities with, and readjusting as appropriate the semiotic square of UP(E) as I proposed it in 1987 (see Part I). There is a mutual feedback between the Foster PL stem lexicon and my 1987 semiotic square of UP(E) which facilitates the discovery of the A- and B-paradigmatic phememic sets. My complete analysis of these sets is given in Tables 3 and 4 and Diagrams 6 and 7.

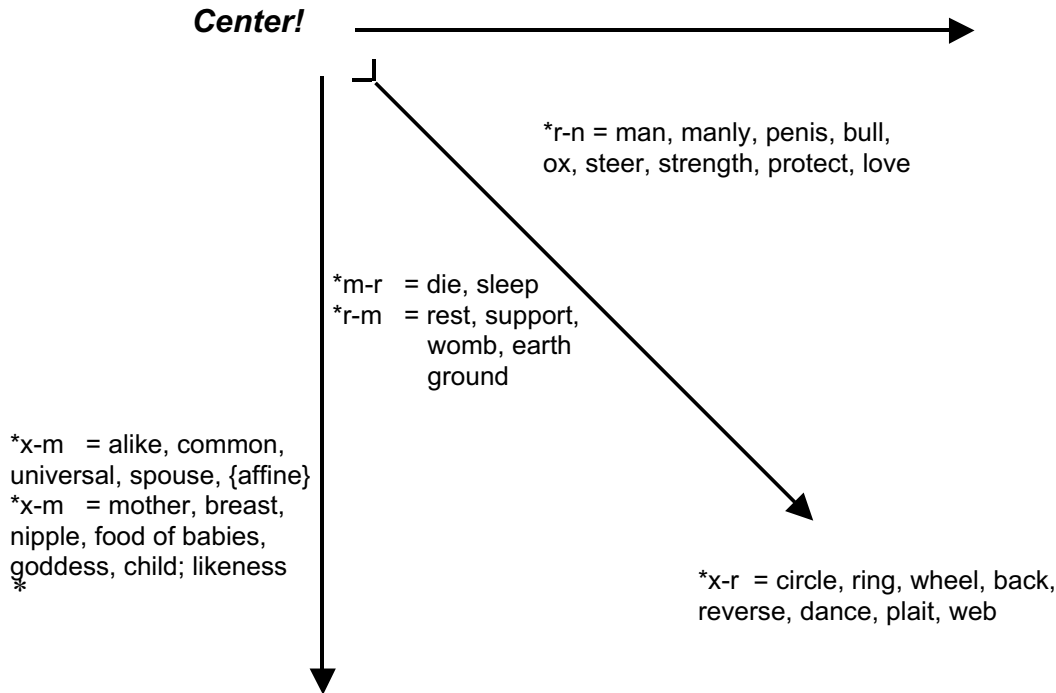
Table 3: PL Phememic Permutation Matrix and Lexicon for ‘A’-Semantics

Paradigms	Phememe	Meanings
/x/ /m/ /r/ /n/		*X = facing, before, opposing, former or remote time *m = interrelationship, betweenness, issue between *r = mobility upward, onset of motion *n = centrality, innerness, belonging to
PL CVR Permutations	PL Root Lexeme	Meanings
x m		#58 = alike, resemblance, common, universal, spouse, {affine}
x m		#65 = mother, breast, nipple, food of babies, goddess, child
x r		#100 = circle, ring, wheel, back, reverse, dance, plait, web, plough
x n		#1 = ancestor, origin, elder, grandmother, grandfather, father, first, before, tradition, mother, protect, cherish, bring up, in front of, approach, the farther side
m r		#21 = die, dead, decompose, decay, sleep
m ← r		#76 = rest against, support, womb, abide, remain, rest, be tranquil, earth, ground
m n		#64 = mental activity: think, sight, glad; memory, {mindful; single, alone; say, understand, grasp; be established, remain; dwell, sit, inside; being-in, self-possession}
m ← n		#88 = share, allot; have, name, quality, carry, long for, desire {possess, hold; belong to}
r n		
r ← n		#62 = man, manly, penis, bull, ox, steer, strength, protect, love
<p>Note 1. (#) lexeme numbers and meaning is that of PL (Foster 1978, 1986, 1990). A permutation without any matching lexeme indicates that no lexeme was provided in Foster 1978. Paradigms (e.g., /rn/) without corresponding lexemes are not listed in Foster 1978 PL., but taken from subsequent works.</p> <p>Note 2. (°) is my symbol for /h/ and /?/, which were not included in Foster 1978, but added in later reconstructions. I have drawn on Foster 1992 to make this attempt to reconstruct a PL stem lexeme; any errors here are mine.</p> <p>Note 3. (←) indicates a CVR phememe reversal.</p> <p>Note 4. { } Meanings in brackets represent my own amplifications, drawing upon Greenberg’s Eurasiatic (2002) and Bengsten and Ruhlen’s Global (1994).</p> <p>Note 5. Foster’s plosive velar k-stems appear to have overlapping sememes with plosive palatal c-stems and fricative X-stems, and thus do not, I think, constitute an elemental differential feature for geometric UP(E). They may belong to cultural, spoken UP(E) lexemes for fabricating and fashioning.</p> <p>Note 6. As Foster herself later does, I have excluded from consideration here, the Foster (1978) trisyllabic X-w stems (X-w-m #86 = swallow, nibble, wink, vomit; X-w-r #49 = hollow, hollow out, bore, middle, center, pole, stake; and X-w-n #2 = aperture, orifice, gap, pass, ravine, to be deep, dream), even though they have meanings similar to UP(E) A-sememes.</p>		

Diagram 6: ‘A’ (Center!) Phememic-Semantics

*m-n = mental activity: think, sight, glad;
 memory, {mindful; single, alone; say,
 understand, grasp; be established, remain;
 dwell, sit, inside; being-in, self-possession}
 *n-m = share, allot; have, name, quality,
 carry, long for, desire

*x-n = ancestor, origin, elder,
 grandmother, grandfather, father, mother,
 first, before, tradition, protect, cherish,
 bring up, in front of,



Note 1. Drawing upon Mary LeCron Foster’s (1978, 1986, 1990) lexicon of ‘primordial language’ (PL), stem words, this diagram presents the key PL stem words structuring geometric UP(E) and thus the spoken form of geometric UP(E).

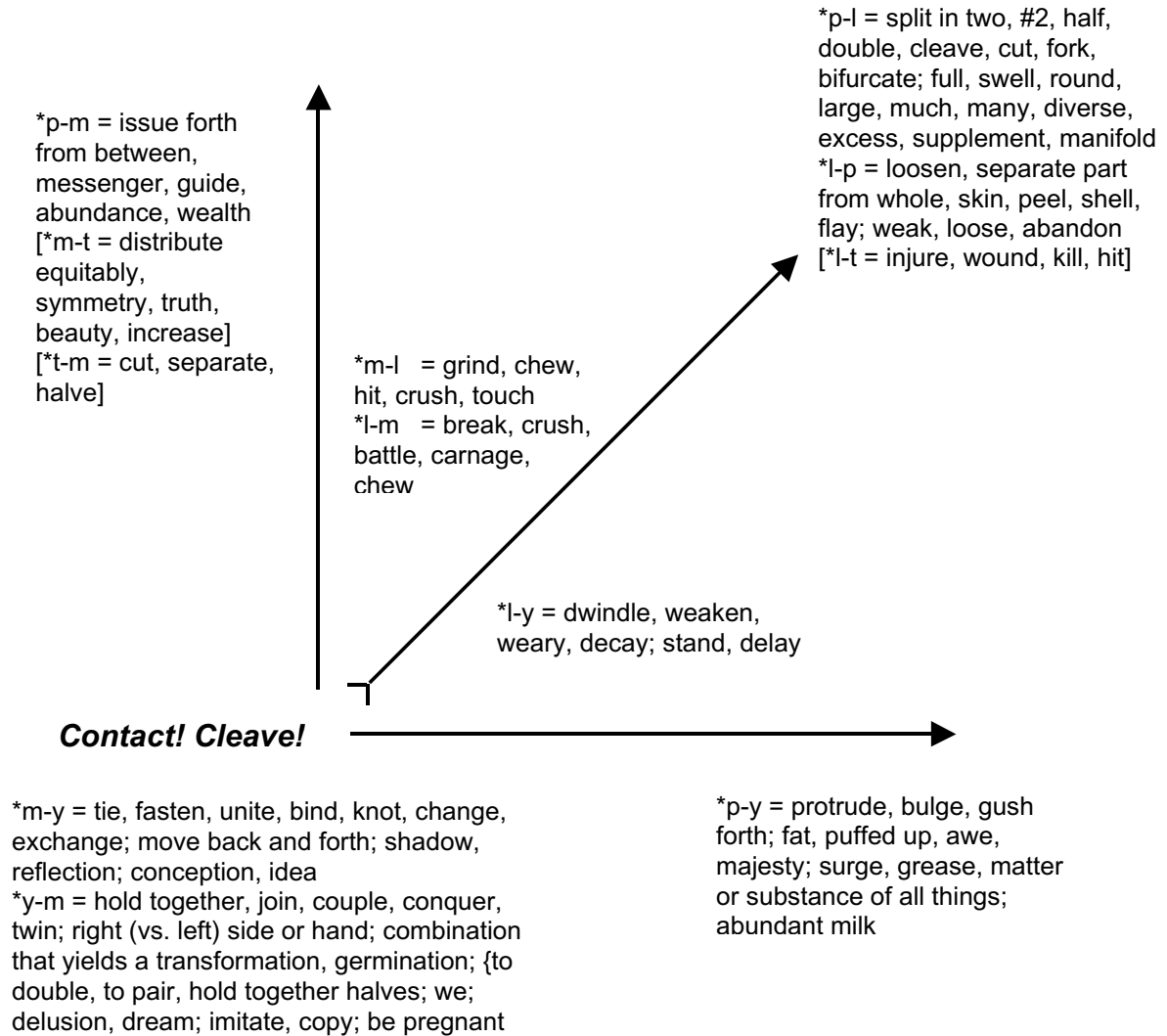
Note 2. { } Meanings in brackets represent my own amplifications, drawing upon Greenberg’s Eurasiatic (2002) and Bengsten and Ruhlen’s Global (1994).

Note 3. *m-n = movement of the ‘bilateral’ to (receive) the ‘in-ness’ and connotes mental activity (intension, taking in, grasping, understanding, comprehending) with heart (belly) and with sense of self and self-possession (me, myself, mine) and with sense of ‘being-in’. The reversal *n-m = ‘movement of the ‘in-ness’ in or into the ‘bilateral’ and connotes to give another a share or division of the whole or common, with sense of giving that which belongs to another (by innate right, entitlement, ‘take what is yours’, what you have a right to receive, your share, what belongs to you) as one’s own name belongs to one (which otherwise would be its converse, theft of that which does not belong to you). In a sense, this is a being given back what already resides in one. Thus, *m-n and *n-m articulate a double perspective on ‘core essence’ as, on the one hand, mindfulness/heart and, on the other, that which innately belongs to oneself as one’s own name.

Table 4: PL Phememic Permutation Matrix and Lexicon for ‘B’-Semantics

Paradigms	Phememe	Meanings
/p/ /m/ /l/ /y/ [t/]	*p = thrust, protrusion, separate from, outwardness *m = interrelationship, betweenness, issue between *l = looseness, lack, laxity, weakness, attenuation *y = linearity, whether stationary or in motion [*t = contact, strike against or through]	
PL CVR Permutation	PL Root Lexeme	Meanings
p m	. . . = {to issue forth from between or carry forth a ‘globularity’; guide, process, send forth, messenger; abundance, wealth, fruit bearing, pregnant; pressure, strike, imprint, snake; beauty}	
[t m] [t ← m]	#17 = cut, chew, separate, distinguish; winnow; suffer, perish, fade, wither, be faint; break, halve {i.e., cutting or dividing of opposite sides, even weakening and thinning}	
p l	[. . . = {contact with the common or shared between opposite sites or a shape of joinedness, gestated from a matrix or shared source; equitable distribution, symmetry, truth, healing}]	
p ← l	#34 = split, cleave, cut, fragment, scrape off, from, flay, fleece; fill, fullness; be in flood, high tide; swell, be round and large; much, many, diverse; {split (in two); #2, half, double, fork, bifurcation; surplus, excess, supplement, manifold}	
[t l]	. . . = (1986) loosen, separate part from whole, skin, peel, shell, piece, bit, embrace, clasp, be weak, loose {abandon}	
[t ← l]	#20 = contact, penetrate, join; carry, support; endure; pelt, fleece, wear tightly, connect; beat, crush, trample	
p y	[. . . = (1986) pain, wound, burning sensation; pound, crush, kiss, strike, kill, next to; pile up, stack; divine, dream]	
[t ← y]	#75 = protrude, bulge, gush forth; fat, puffed up, awe, majesty; surge, grease, matter or substance of all things; abundant flow of milk [. . . = (1986) Egyptian y-t = a woman who has conceived]	
l	#43 = grind, chew, mill, hit, crush, mix, be agitated, touch	
m ← l	#16 = break, crush, battle, carnage, chew, wear away, bad	
m y	. . . = tie, fasten, unite, bind, knot, change, exchange; move back and forth; shadow, reflection; conception, idea;	
m ← y	#47 = hold together, join, couple, conquer, twin; bind, tie; right (vs. left) side or hand; combination that yields a transformation, germination; {to double, to pair, hold together halves; we; delusion, dream; imitate, copy; be pregnant	
l y	#26 = dwindle, weaken, weary, decay; stand, stay, delay	
l ← y		
<p>Note 1. (#) lexeme numbers and meaning is that of PL (Foster 1978, 1986, 1990). A permutation without any matching lexeme indicates that no lexeme was provided in Foster PL.</p> <p>Note 2. /t/ has overlapping features. As a dental stop contiguous with the labial /p/, it is associated with "B" sememes, and as contiguous with the dental /θ/, it is associated with "C" sememes.</p> <p>Note 3. (←) indicates a CVR phememe reversal.</p> <p>Note 4. { } Meanings in brackets represent my own amplifications, drawing upon Greenberg’s Eurasianic (2002) and Bengsten and Ruhlen’s Global (1994).</p>		

Diagram 7: ‘B’ (Contact! Cleave!) Phememic-Semantics (1994)



Note 1. Drawing upon Mary LeCron Foster’s (1978, 1986, 1990) lexicon of ‘primordial language’ (PL), stem words, this diagram presents the key PL stem words structuring geometric UP(E) and thus the spoken form of geometric UP(E).

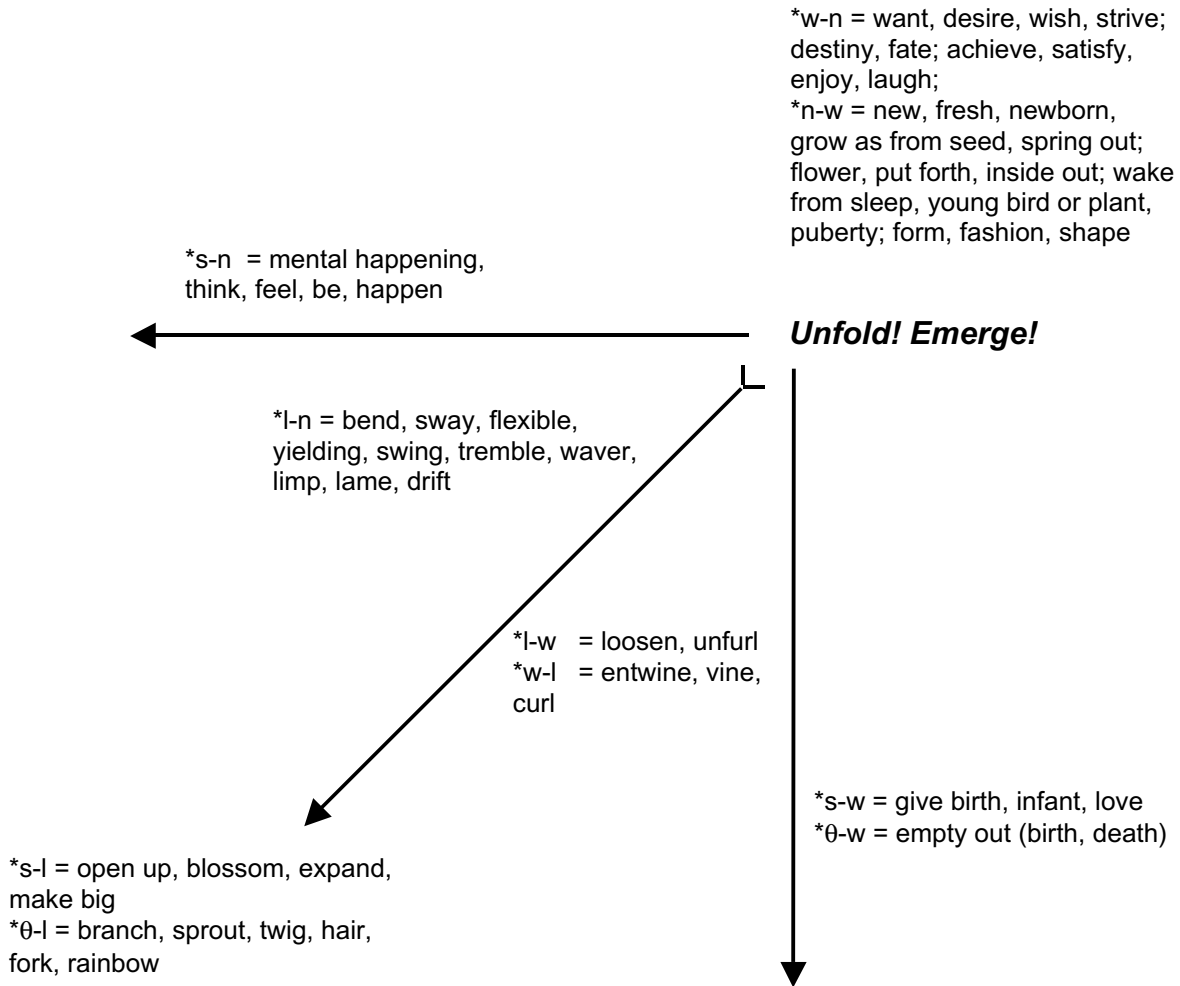
Note 2. { } Meanings in brackets represent my own amplifications, drawing upon Greenberg’s Eurasiatic (2002) and Bengsten and Ruhlen’s Global (1994).

Note 3. *m-y = ‘exchange’ and to ‘tie, bind, unite’. The reversal, *y-m = ‘to double, pair, hold together (halves)’. Thus, ‘maya’ is the binding attachment of the necessity to exchange, be interdependent, while ‘yama’ is the detachment and equanimity of mind that allows mutual independence.

Table 5: PL Phememic Permutation Matrix and Lexicon for 'C'-Semantics

Paradigms	Phememe	Meanings
/s/ /θ/ /w/ /l/ /n/ [s̃/]	*s = expanding *θ = joining *w = roundness, encircling, turning, *l = looseness, lack, laxity, weakness, attenuation *n = centrality, innerness, belonging to [s̃ = verticality]	
PL CVR Permutation	PL Root Lexeme	Meanings
s w θ w [s̃ w]	#61 = give birth, infant, love, affection, desire, wish, want #29 = emptiness, cessation, lack, empty or be emptied out; to give birth, death, poverty [#84 = increase, augment, omen, drive, urge, desire, stretch]	
s l θ l [s̃ l]	#71 = open up, relax, expand, loosen, blossom, swing, tangle, let go, hang loose, make big #6 = bend, branch, sprout, twig, hair, fork, rainbow, suspend [#59 = loosen, set free, let go, "loose" person]	
s n θ n	#103 = differentiated, without, you, occurring to the mind, think, intend, feel, be, happen, scatter, rout, defeat [compare *t-n #83 = stretch, extend, pull, increase, become tall]	
w l [w l] w ← l	#92 = turn, entwine, curl, spiral, encircle, dance, convoluted (like a vine) [#52 = wound, injure, conquer, howl, child, progeny, bastard] #60 = loosen what surrounds or is surrounded: cut loose, loosen (wool, hair, fleece), wear away, to explode (of a gun)	
w n w ← n	#45 = want, desire, wish, love, strive; arrive, future, destiny, fate; weave, bend, turning, ribbon, braid; waver, tremble, flag; wake from sleep, young bird or plant, puberty; form, fashion, shape; experience; #5 = to change from one state to another; new, fresh, newborn, birth, rise, grow {start growing up, as from seed, spring out}; flower, put forth, inside out; {now, present, immediately}; achieve, satisfy, enjoy, laugh	
l n n ← l	#7 = bend, sway, flexible, yielding, swing, shake, tremble, waver, limp, lame, drift	
<p>Note 1. (#) lexeme numbers and meaning is that of PL (Foster 1978, 1986, 1990). A permutation without any matching lexeme indicates that no lexeme was provided in Foster PL.</p> <p>Note 2. [] Lexeme #52 seems anomalous in the context of other "C" lexemes.</p> <p>Note 3. { } Meanings in brackets represent my own amplifications, drawing upon Greenberg's Eurasiatic (2002) and Bengsten and Ruhlen's Global (1994).</p> <p>Note 4. (←) indicates a CVR phememe reversal.</p> <p>Note 5. /s̃/ as a palatal-alveolar has overlapping features with dental alveolar /θ/ and palatal /c̃/. Some stems fit "C" sememes indicated above; other stems seem to belong to cultural UP(E).</p> <p>Note 6. *w-n = /n/ inner, intentional, striving in order to /w/ = circumscribe and take in, i.e. fulfill or accomplish inner intention. *n-w = an 'in' that is 'inside' the containing that is opening up as /n/ is pronounced with a flick of the tongue forward and down with an opening up of the articulatory tract and /w/ is like a breath blown outward. Thus *n-w = an innerness that is revealed (emergent) nascent, an inner that is revealed by the opening up of that which surrounds it and breathing it out like a breath.</p>		

Diagram 8: ‘C’ (Unfold! Emerge!) Phememic-Semantics (1994)



Note 1. Drawing upon Mary LeCron Foster’s (1978, 1986, 1990) lexicon of ‘primordial language’ (PL), stem words, this diagram presents the key PL stem words structuring geometric UP(E) and thus the spoken form of geometric UP(E).

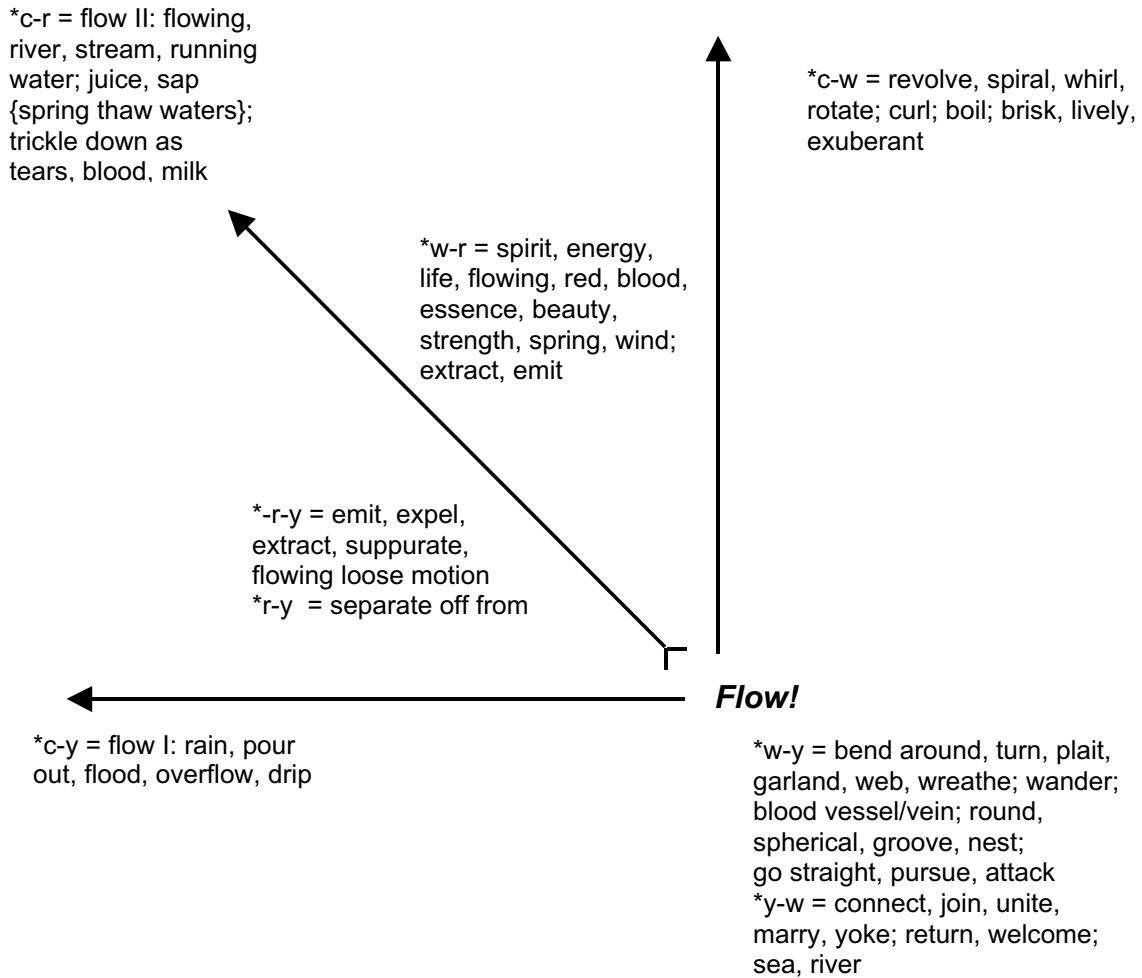
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Table 6: PL Phememic Permutation Matrix and Lexicon for ‘D’-Semantics

Paradigms	Phememe	Meanings
/c/ /w/ /r/ /y/		*c = displacement, dislocation, extruding *w = roundness, encircling, turning, *r = mobility upward, onset of motion *y = linearity, whether stationary or in motion
PL CVR Permutations	PL Root Lexeme	Meanings
c w		#11 = revolve, circulate, spiral, whirl, rotate; curl; boil; brisk, lively, exuberant
c r		#36 = flow II: flow, flowing, river, stream, running water; juice, sap {spring thaw waters}; slip away, slide down, trickle down as tears, blood, milk
c y		#35 = flow I: flow, flood, rain, pour out, overflow, drip (mucous, urine, breast milk, viscous liquid)
w r w ←—— r		#32 = extract, emit, blood, essence, red, spirit, energy, life, flowing, beauty, strength, spring, wind, smoke a pipe, breeze
w y		#101 = bend around, rotate, turn, plait (basketry), thatch, garland, web, change; wind around, wreath; deceit, seduce, wander; blood vessel/vein; round, spherical, groove, nest, belly; go straight, pursue, attack,
w ←—— y		#63 = connect, join, unite, marry, yoke; return, welcome; sea, river
r y		#82 = cut off, separate from, sift, lines in white of eye; bumblebee, fornication; split, cut off
-r -y		#27 = forth, from, separated; emit, expel, extract, suppurate (pus); flow, flowing; be full; loose motion (said of cattle)
r ←—— y		
<p>Note 1. (#) lexeme numbers and meaning is that of PL (Foster 1978, 1986, 1990). A permutation without any matching lexeme indicates that no lexeme was provided in Foster PL.</p> <p>Note 2. { } Meanings in brackets represent my own amplifications, drawing upon Greenberg's Eurasiatic (2002) and Bengsten and Ruhlen's Global (1994).</p> <p>Note 3. (←——) indicates a CVR phememe reversal.</p> <p>Note 4. As the phememe /c/ does not carry a clear differential feature, stems *c~w (#14 = swell, convex, concave, turn, circuit, full, draw water), *c~r (#73 = pointing upward, peak, head, horn, tooth, hut), and *c-y (#57 = lean, slope, lie, stream, avalanche, languish, die) are largely anomalous in the context of the other "D" stem words and appear to belong to cultural UP(E).</p> <p>Note 5. *w-y = circumscribing, circular movement that is directed, moves forward such as a weaving or other rotational processes, thus a constantly circling back on itself movement that nevertheless is a constantly a movement forward. The reversal *y-w = directing a linear movement into a circumscribed circle, such as marriage, yoking horses (which themselves are linear movements), thus a directed movement that always returns to itself.</p>		

Diagram 9: ‘D’ (Flow!) Phememic-Semantics



Note 1. Drawing upon Mary LeCron Foster’s (1978, 1986, 1990) lexicon of ‘primordial language’ (PL), stem words, this diagram presents the key PL stem words structuring geometric UP(E) and thus the spoken form of geometric UP(E).

Note 2. { } Meanings in brackets represent my own amplifications, drawing upon Greenberg’s Eurasiatic (2002) and Bengsten and Ruhlen’s Global (1994).

Note 3. *w-y = circumscribing, circular movement that is directed, moves forward such as a weaving or other rotational processes, thus a constantly circling back on itself movement that nevertheless is a constantly a movement forward. The reversal *y-w = directing a linear movement into a circumscribed circle, such as marriage, yoking horses (which themselves are linear movements), thus a directed movement that always returns to itself.

20. The preceding reconstruction reveals that the key differential phememes, which structure the fourfold oppositional polarities of the phememic-semantic square of UP(E), are

A-semantic field: /x/
 B-semantic field: /p/
 C-semantic field: /s-θ /
 D-semantic field: /c/

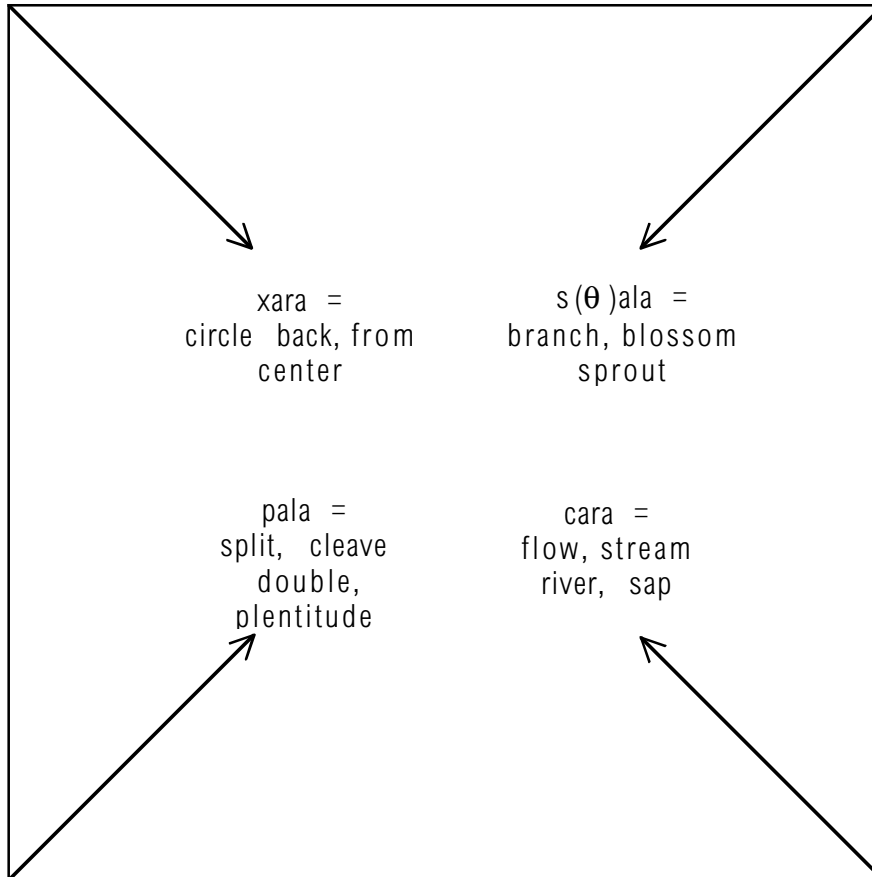
The corresponding key differential lexeme stems, drawing on Foster's PL, are *xara*, meaning circle back, from, center; *s(θ)ala*, meaning branch, blossom, sprout; *pala*, meaning split, cleave, double, plentitude; and *cara*, meaning flow, stream, river sap. Diagram 10 summarizes these key differential lexemes.

Further, /l/ : /ɾ/ constitutes another key structural feature that generates the phememic-semantic square of spoken UP(E). This structure seems to arise out of a background (historically earlier) differentiation of /m/, /w/, /n/ and /y/ that contributes the lexemes *m-n, *w-n, *m-y, and *w-y to the spoken UP(E) square. Diagram 11 summarizes the overall phememic differential features of spoken UP(E).

Note that the **p-l* semantics in Foster PL independently matches the semantics of *pala* in Bengsten and Ruhlen's Global #18 *pal* = 'number 2, twin, half, pair, side' (1994). This is further confirmation that our decipherment of UP(E) B-semantics and corresponding phememes are on target. Similarly, the **m-n* semantics matches Global # 14 *mana* = 'stay (in a place)'; #15 *mano* = 'man, woman, person'; #16 *mena* = 'to think (about)' and #17 *mi(n)* = 'what, who', i.e. essence.

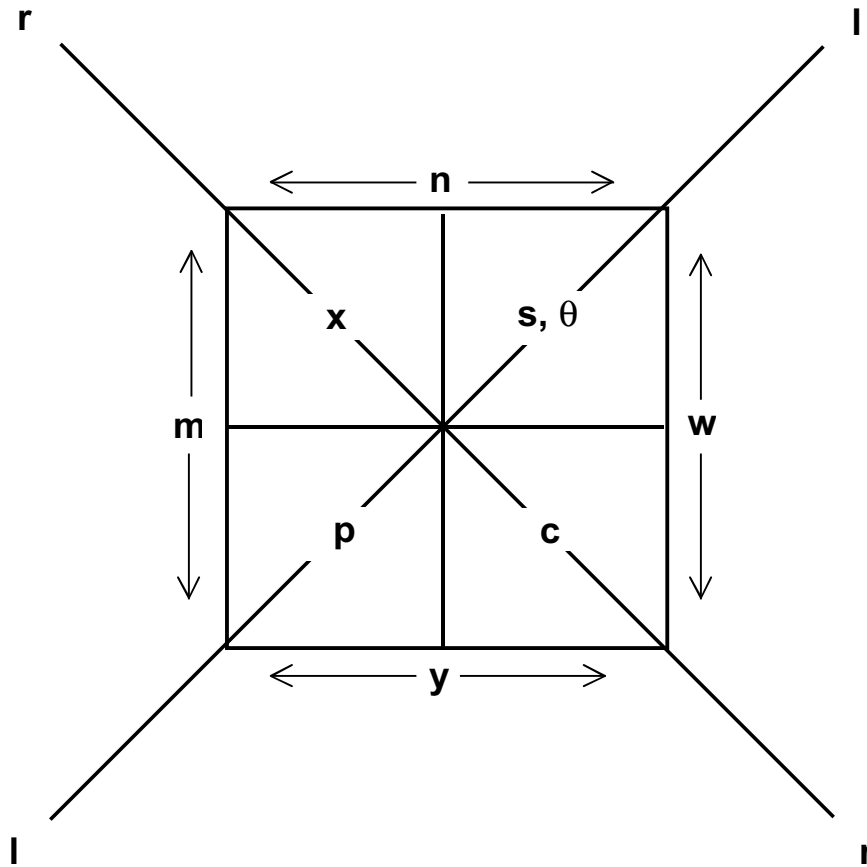
21. The full reconstruction of the A, B, C, and D-semantic fields of spoken UP(E), including the noted lexemic differential features, organizes itself into a semiotic square analogous to that of the grapho-semantic square reconstructed in Part I. Diagram 12 summarizes this semiotic square. Although Foster (1978) assigned /e/ as the thetic vowel in the CVR form of the PL roots, in reconstructing the stem roots of UP(E), I have arbitrarily assigned a thetic /a/ as the vowel. I think it facilitates ease of pronunciation and also has a more poetic, chant-like quality. It also happens to be the vowel with the greatest universality in the world's languages.

Diagram 10: The Key Differential Pmemic-Semantic Square



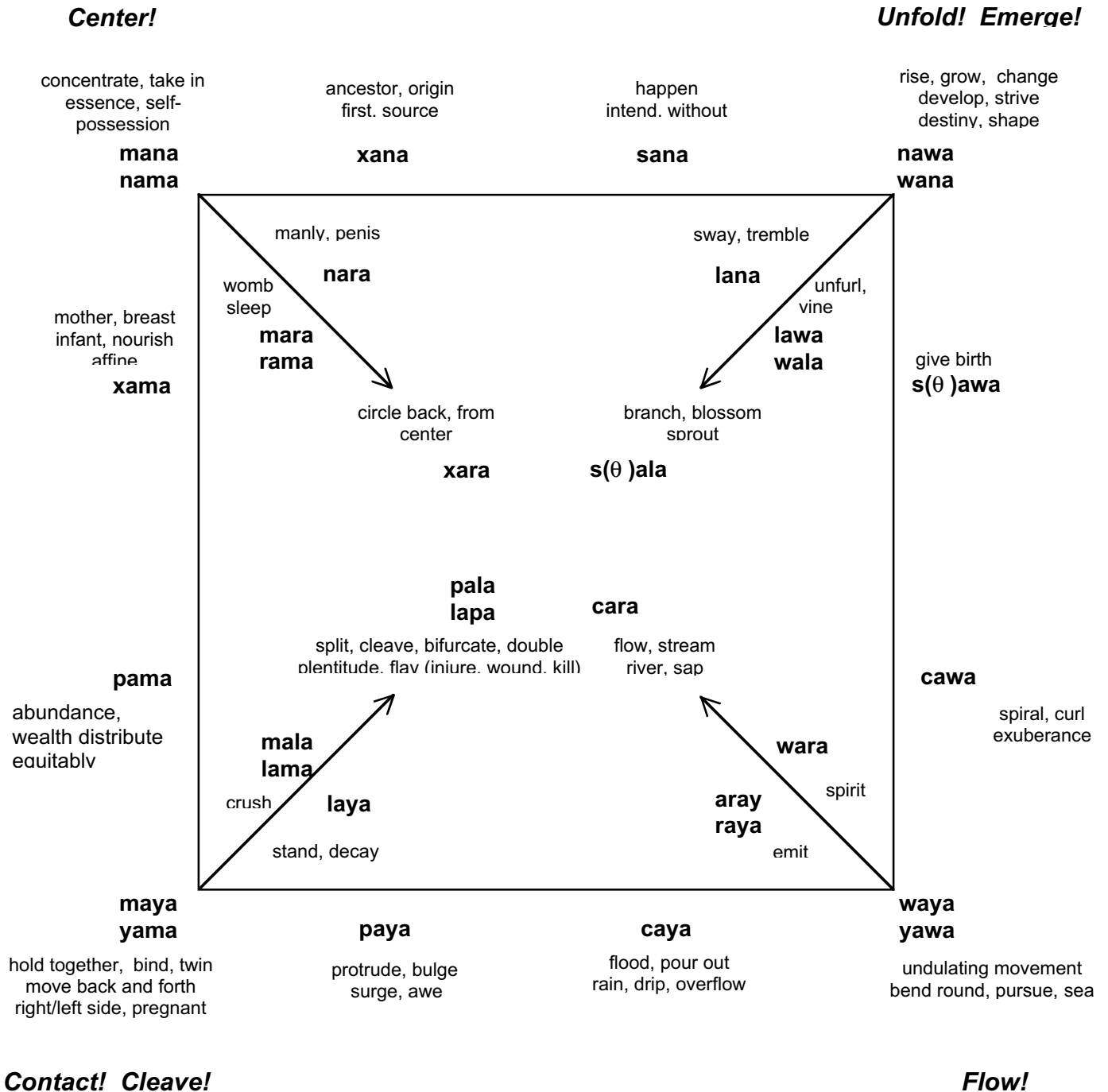
Note: Drawing upon Mary LeCron Foster's (1978, 1986, 1990) lexicon of 'primordial language' (PL), this diagram presents the key PL stem words of maximal 'contradiction', that is, the stems having the strongest differential features structuring geometric UP(E) and thus the spoken form of geometric UP(E).

Diagram 11: Spoken UP(E) Phememic Differential Features



Note: These ten (10) spoken UP(E) phememes—l, r, m, w, n, y, x, t, s-θ, c—have 45 combinations and 90 permutations, and these UP(E) phememes can generate 90 two syllable, CVR roots for spoken UP(E).

Diagram 12: The Expanded Phememic-Semantic Hypothesis



Note. I have arbitrarily assigned as athetic /a/ as the vowel in the CVR form of spoken UP(E), although Foster 1978 assigned /e/, in order to facilitate pronunciation.

22. To test the validity of the decipherment of spoken UP(E) up to this point, I applied several coherence tests to see what would happen if any of the paradigmatic phememes were shifted. I decided to see what would happen if I changed one of the resonants. I reversed the role of /n/ and /r/ in the C and D paradigms. The result was to shift *w-n (= newborn, rise, grow) to the D-semantics, where it doesn't belong, and *w-r (=essence, blood, spirit, wind, spring) to the C-semantics, where it also doesn't belong. It also adds *l-r (=deficient in growth) to the C-semantics, where it would be a negation of everything that the C-semantics stands for! Clearly, this shift makes things more incoherent.

If the preceding might be termed a 'vertical' shift, I then tried a 'horizontal' shift. I reversed the roles of /w/ and /r/ between the A and C paradigms. This produced a similar alteration toward greater incoherence.

I then tried a different tack. I reviewed the so far excluded PL words to see if any of these might be added back to the A, B, C, or D-semantics language paradigms. The only stem that seemed relevant was a tri-syllabic *xww (=bounded aperture, mouth, genitals, woman), but its enlistment would entail bringing *xw (= weather, rain) with it, which makes little if any coherent sense.

It seems impossible to vary the paradigms without generating greater incoherence. The reader is challenged to try other modifications.

23. As this reconstruction suggests, UP(E) generates stems (lexemes) by a combinatoric of phememes, according to the formula CVR(V). A simplified system of four paradigmatic sets of four phememes taken two at a time can generate 24 combinations and 48 permutations (reversals), so that one would expect a 48 stem lexicon for the spoken UP(E) protolanguage, mappable against grapho-semantic UP(E). Foster's reconstructed set of PL stems provides at least one stem for each combination, and sometimes, several, since there is one variant phememe, as in /s-θ/, and some reverse permutations.

24. This reconstruction of the 'expanded' phememic-semantics of spoken UP(E) represents only a portion of Foster's reconstructed Primordial Language (PL). It is the portion that appears to be directly mappable onto my postulated 'expanded' grapho-semantics of UP(E). It might be designated 'spiritual' spoken UP(E) as distinct from the remainder of PL stems, which would then belong to a 'secular' or 'cultural' spoken UP(E).

25. In the grapho-semantic reconstruction of UP(E) (see Part I) I proposed that each of the four basic semantic fields of UP(E) was graphically represented by a cluster of variant ideograms. Now, based on the rich nuances of the 'expanded' reconstruction of spoken UP(E), it can be hypothesized that each of the twenty four basic stems of the A, B, C and D-semantic fields (six per pole) had a corresponding graphic sign. A review of the graphic signs shows that there are many easy matches, others more tentative.

26. Graphemes corresponding to the D-phememic-semantic field appear to be as follows:

- *caya** = zigzag (like lightning, sign of rain, irruptive flood);
- *cara** = chevron, contained stream images with or without chevrons;
- *cawa** = spirals, arcs;
- *wara** = tri-lines; the three worlds of the spirit -- upper, middle, and lower worlds;
- *raya** = comets, rays from a source;
- *waya** = meanders, undulating, winding, intertwining lines.

The C-field seems to have fewer graphic representatives readily identifiable in the evidence:

- *s(θ)ala** = branch;
- *nawa** = new chicks, egg hatch, snake emergence, plants sprouting;
- *lawa** = vine; unfurling, sinuous plant imagery;
- *s(θ)awa** = tectiforms, open ended ellipses (parentheses), rectangles with side broken open by line, birthing images;
- *s(θ)ana** = dot, cupule.

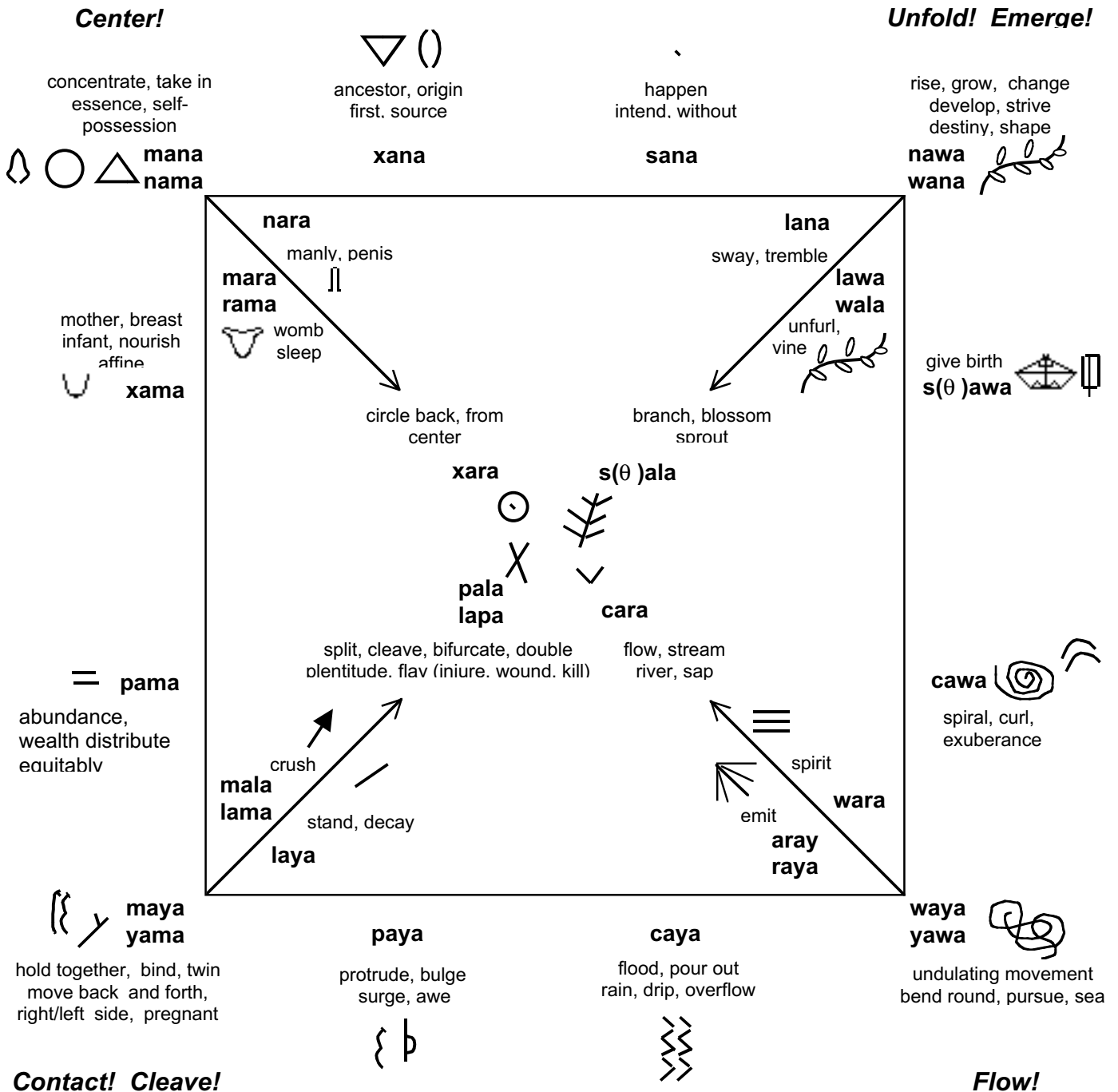
For the B-field more differentiated signs are possible:

- *paya** = claviforms, images of pregnancy;
- *pala** = x's;
- *pama** = bi-line;
- *mala** = dart;
- *laya** = single stroke, stroke with cross or barb(?);
- *yama** = brace signs, double (male/female claviform) shapes, fork.

Finally, graphemes corresponding to the A-semantic field would be:

- *xama** = breast;
- *xara** = circle, circle with hole or dot in center, circle with rays directed inward towards the center
- *xana** = inverted triangle, vulva
- *mara** = uterus, womb;
- *nara** = penis;
- *mana** = circle, droplet, ellipse, triangle, all with or without central dot, or merging with seed imagery.

Diagram 13: The Maximal Phemo-Grapho-Semantic Hypothesis



Note. This diagram maps (Diagram 12) the Expanded Phememic-Semantic Hypothesis for spoken UP(E), which draws upon Mary LeCron Foster's (1978, 1986, 1990) lexicon of 'primordial language' (PL), against (Diagram 5) my proposed Expanded Grapho-Semantic Hypothesis for geometric UP(E).

Diagram 13 summarizes the attempt to allocate UP(E) graphemes to corresponding UP(E) lexemes.

Some further features of the phememic-semantic reconstruction of spoken UP(E) may be noted.

27. First, UP(E) appears to generate stem lexemes by pairing phememes, which are iconic sound mouth-gestures. Thus, each UP(E) stem lexeme in its CVR construction is a pairing of two sememes. Each UP(E) stem represents a combination of two movement-forms, that is, a double-movement-form. Thus, in the case of the "corner" stems:

na (innerness) + *ma* (betweenness, coactive) = *nama* (an inward containment, i.e., concentrate, access, essence, possess);

ya (lineality, stationary or in motion) + *ma* (betweenness, coactive) = *yama* (going, contacting and between, i.e., bind, twin, hold together, right/left side);

na (innerness) + *wa* (circularity, roundness) = *nawa* (innerness rounding, circling, i.e., growing, developing out of an embryonic potentiality);

ya (lineality, stationary or in motion) + *wa* (circularity, roundness) = *yawa* (lineality and circularity, i.e., an undulating or meandering movement, bending around, pursuing).

Other examples include *cawa*, displacement, slippage + circularity, which combine to mean "spiral," i.e., a circle continuously displacing itself; *hana*, beginning + innerness, to mean "origin, source"; and *paya*, outward or forward thrust + lineality, stationary or in motion, to mean "protrude, bulge (pregnant)."

28. Second, the four key differential phememes of UP(E) appear to be structured by an operational rule of a mathematical group. [Compare Levi-Strauss (1967) on the 'law of myths', the formula for which is $F_x(a) : F_y(b) :: F_x(b) : F_{y-1}(a)$.] Diagram 14 summarizes the UP(E) phememes by articular location and phonetic type. Apparently, a mathematical group law organizes the complex set of binary relationship between the phonetic articular locations and the phonetic type for each of the differential phememes, as follows:

/p/ : /x/ :: /s-θ/ : /c/

or in other words,

front stops : rear fricatives :: front fricatives : mid stops.

This pattern is an operational rule organizing the fundamental phememic square of UP(E), i.e., the ‘phonology’ of UP(E). It appears to inform the mutual co-origination and inter-differentiation of these phememes. In other words, two binary oppositions, one in the stops and one in the fricatives constitute the critical differential features generating the phonemic structure of spoken UP(E).

Historically, UP(E) appears to reflect a late Upper Paleolithic acquisition (invention) of the front-fricative/mid stop and rear-fricative/front-stop oppositions. (Coincidentally, Australian aboriginal languages exemplify most of the cases worldwide in which fricatives are absent. If this anomaly is not recent, it supports the view that fricative invention occurred in Europe (and elsewhere) during the Upper Paleolithic, after the branching of European and Australian languages from a common Middle or Early Paleolithic language.)

A hypothetical model for the developmental acquisition stages for spoken UP(E) is given in Diagram 15.

29. The correspondences between Foster’s PL and my proposal for UP(E) displays a remarkable fit. There are only a few apparent anomalies or mismatches in the cross-mapping, and these I will now consider, especially as they appear to reveal further dimensions of the protolanguage, spoken UP(E).

One mismatch is that because of the key differential features structuring the mapping of spoken UP(E) onto geometric UP(E) certain CVR permutations of *x, *p, *s-q, and *c found in Foster’s PL are excluded from the cross-mapping. I will show in the next section how these stems bear sememes that appear to be a competence for addressing critical cultural values for the peoples who spoke UP(E).

Two other anomalies involve consonantal stop and fricative phememes that occur in Foster’s PL but are not differential features in our reconstructed ‘expanded’ hypothesis for spoken UP(E) mappable onto geometric UP(E). These two anomalies are clarified by reflecting upon the articular locations and phonetic type of sound-forms in PL (see Diagram 14).

Diagram 14: UP(E) Phemes by Location of Articulation

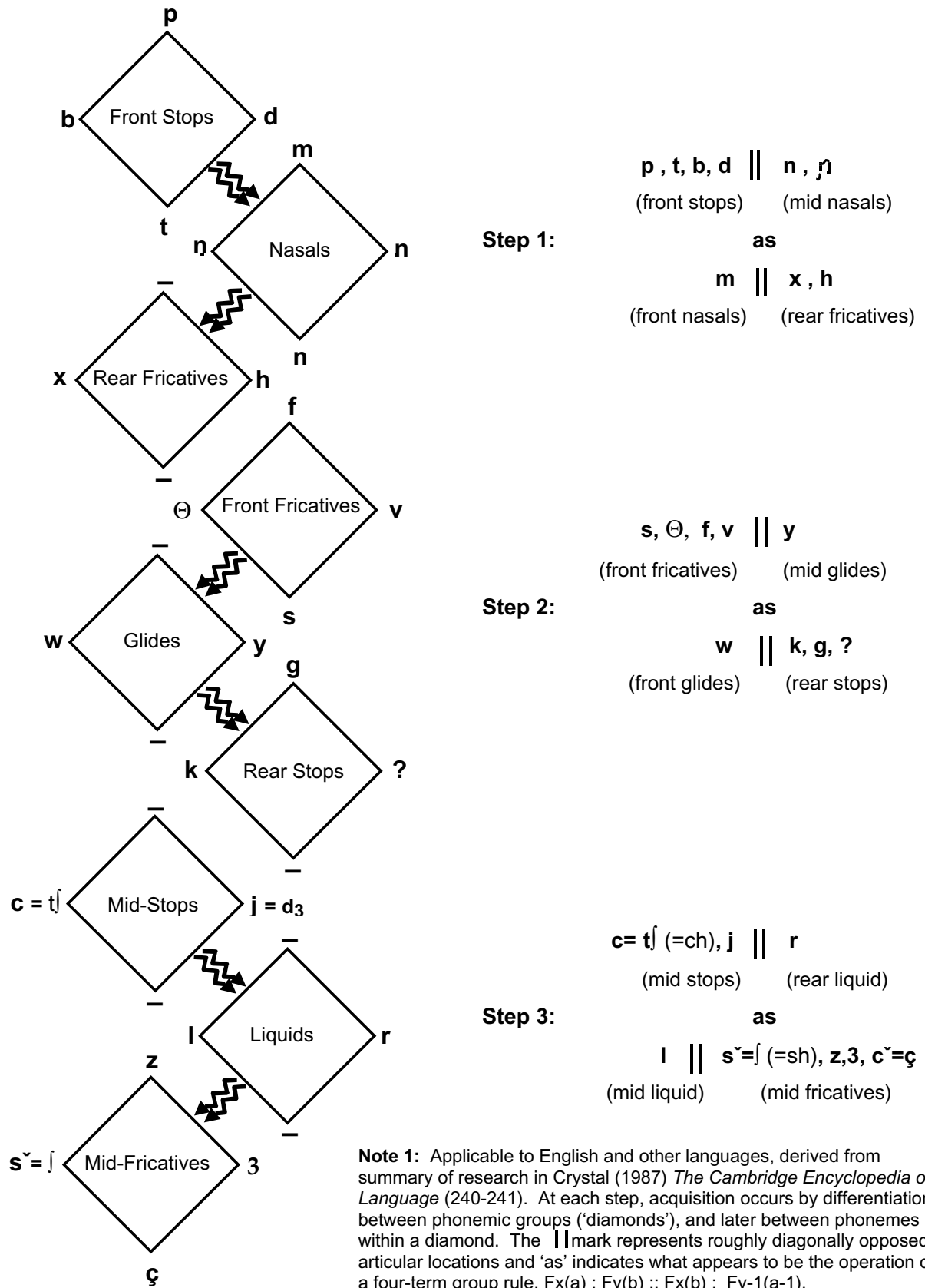
	Bilabial	Labiodental	Dental Alveolar	Palatal Alveolar	Palatal	Velar	Laryngeal
Stops	p b		t d		c = tʃ	k g	?
Fricatives		f	θ s	ṣ = ʃ	c̣ = ç	x	h
Nasals	m		n		ɲ	ŋ	
Glides	w				y		
Liquids			l			r	

Note: UP(E) consonants are shown in bold type. Encircled phemes are the key differential phemes of spoken UP(E), including both geometric UP(E) and cultural UP(E). Shaded phemes, I designate as 'spacers' between primary structural differential phemes.

Foster later replaced two (1978) PL tri-syllabic phemes with *h and *?. These appear to belong to UP(E) in a manner distinct from the basic 4-cluster phemes. For reference, the twenty most universal consonants across the languages of the world are /p, b, t, d, k, g, ?, m, n, ɲ, ŋ, f, s, ṣ, h, w, y, l, r/. Of these, those not found in UP(E) are shown in small type.

Diagram based on International Phonetic Alphabet.

**Diagram 15: General Pattern of Developmental Acquisition of Consonants:
9 Diamond Hypothesis**



In one case, the fricative *s̃-stems (pronounced ʃ = ‘sh’) are ambiguous, with some sememes fitting /s/ sememes, and others not. This seems to accord with its ambiguous articular location of right in the middle of the articular range. I have chosen to leave the PL *s̃-stems completely aside for now.

In the other case, the stops and fricatives *k, *f, *t and *c̃-stems may be considered to serve as spacers or buffers between the key differential articular locations for *x, *p, *s-q, and *c. As might be expected there semantics betray oxymoronic combinations of sememes which appear to be drawn from the contiguous key differential features of phememic-semantic UP(E). Nevertheless, these four spacer phememes occur as consonants in PL CVR stems that as I will show shortly appear to constitute root themes for cultural and indeed shamanic topics.

30. After working through the reconstruction of the cross-mapping of phememic UP(E) upon graphematic UP(E), which identifies some fifty words of PL as applicable to geometric UP(E), a protolanguage of the ‘spiritual’, I examined the possible significance of the other half of Foster’s PL CVR stems. This revealed some additional things that might be used to reconstruct the full array of spoken UP(E).

31. On the one hand, using the same key differential phememes as found in the ‘spiritual’ UP(E), namely, of *x, *p, *s-q, and *c, if one lists out for each of these phememes all the remaining Foster PL stems—that is, those not already used in our paradigm sets for spoken UP(E) applicable to the geometric signs—this yields four distinct lexeme clusters. As in the case of ‘spiritual’ UP(E)’s four semantic clusters, each of these clusters also appears to have a common thematics. I have attempted to elucidate each theme. All four clusters seem to concern critical cultural values for the peoples who spoke UP(E).

- A-semantic field:** /x/ = valuation of community over individual; sharing, altruism
B-semantic field: /p/ = valuation of childcare and bravery
C-semantic field: /s-θ / = valuation of foraging (hunting and gathering) and exchange
 prowess
D-semantic field: /c/ = valuation of harmony, propriety, elegance, attractiveness

If so, these stems appear to inform ‘cultural’ or ‘ethical’ purposes of UP(E) use, which would have characterized Upper Palaeolithic social arrangements.

Table 7: 'Cultural' or 'Ethical', Spoken UP(E)			
Semantic Field	PL Permutations	PL Root Lexeme	Meanings
A-Semantics Valuation of community over individual, sharing, altruism	x-l x-l x-y x-y x-w	#8 #68 #3 #66 #99	= beyond, other than oneself, stranger, other place = other, other than oneself, negation, hey! = apportion: give, share, apportion, divide, alms, luck, families, dependents = be healthy, get well, move mightily, quickly = weather (rain, damp, warm), sweat, blow, boast, live, be healthy
B-Semantics Valuation of childcare and bravery	p-n p-r p-w	#33 #38 #12	= feed: feed, food, nourishment, house, breasts, eat = further: effort, risk, danger, bravery = cleanse, wipe, bathe, purify
C-Semantics Valuation of foraging (hunting and gathering) and exchange prowess	s-m s-y s-r s̃-m s̃-y s̃-r θ-m θ-y θ-r	#40 #46 #4 #81 #78 #42 #95 #23	= go: go, journey, walk, expedition, send, reach = high: chief, head, above, strong, able, on top = around, both sides, this/that side, beyond = share, honor, business exchange, group meal = high ranked person, risen, grow, stand, rooted = grasp: get, take, obtain, steal, hunt for game = walk, go, traverse, wear away by friction = dig up: dig, unearth, scoop, bore, hollow out
D-Semantics Valuation of harmony, propriety, elegance, attractiveness	c-m c-n c-l	#102 #13 #31	= with like items: same, together, agreement, good = complete: prepare, achieve, excellent, straight, properness, elegance = extract: procure, attract, bring, cause, draw, fish with net,
<p>Note 1. This table derived as follows. Take the Foster PL roots containing the consonants *x, *p, *s-theta and *c, which I propose to be the four basic differential phemes of geometric UP(E), and subtract those that correspond to Graphematic UP(E). Those that are left are listed in this table. These I suggest constitute an oral, spoken UP(E) without graphematic representation. All these stems appear to have a common theme concerning social values, and thus might be called 'cultural' or 'ethical' UP(E).</p> <p>Note 2. (#) lexeme numbers and meaning is that of PL (Foster 1978, 1986, 1990). A permutation without any matching lexeme indicates that no lexeme was provided in Foster PL.</p> <p>Note 3. The PL phememe *s̃ has some stems that overlap in meaning with *s, and I listed them with graphematic UP(E); the rest I list here.</p>			

32. After reconstructing this ‘ethical’ domain of UP(E), not yet included stems in Foster's PL lexicon are roots constructed from the four "spacer" phemes, the stops and fricatives *k, *f, *t and *c̃. Each has six permutations, given resonants *m, *w, *n, *y, *l, and *r, and each of these four semantic clusters—like those in the preceding reconstruction—appears to have a common thematic. All four clusters appear to address aspects of everyday Upper Palaeolithic technology and skills.

- *c̃-semantic field** = hut-making, tapered and pointed tool-making and woodworking, water-drawing
- *k-semantic field** = hide-making, basket/container-making, engraving, digging (foraging)
- *f-semantic field** = shame/respect words, re maturity/immaturity, health/illness, disabled, elderly and dying
- *t-semantic field** = childcare: nurturance, protection, well being, carrying, discipline

Table 8 provides the details of the lexemes used in this derivation.

33. On the other hand, this same fourfold set of lexemes can be given a quite non-everyday reading. The semantic nuances of these stems could have been used to address the basic topics of shamanic healing. For instance, the ‘pointedness’ and ‘languishing’ denoted by *c̃-words can be used to refer to introjected affects of abuse and trauma. Shamanic practitioners in various cultures refer to such syndromes as "pains" and cure them by the technique of "extraction", which they symbolize by the removal of teeth, thorns, splinters, fragments of bone, arrowheads, or other entities that a presumed sorcerer shot into the patient's body. The ‘pit, hole, deep, compressed, blindness’ denoted by *k-words can signify emotional abuse and trauma, which involves repression, isolation, a feeling of being encapsulated, sleep disorders, and loss of vital survival instincts, which shamans heal through abreaction and catharsis, rituals of rebirth, and power animal retrieval. The ‘shame, disparagement, illness, defect, corpse’ denoted by *f-words can signify the patient's sense of pollution, bondage, guilt, that is, ‘evil’, whether as victim or perpetrator. It can signify addictions (‘pollution’) and transgenerational hauntings, repetition compulsions that result in the reproduction of evil, which shamans heal through purification, exorcism and forgiveness rituals. Finally, the ‘cutting, separating, suffering, perishing, being cut or torn apart, faint, frailness’ denoted by *t-words can signify the patient's memory gaps, dissociation, and chronic stress diseases (syncope, shock, catatonia, sudden death), and soul loss, which shamans heal through spirit-soul retrieval. (See Table 9 for summary of details.)

Table 8: Further Possible Spoken UP(E) Root Lexemes Pertaining to Everyday Cultural Skills (Derived from Cross-Positional Phemes)			
Semantic Field	PL Permu- tations	PL Root Lexeme	Meanings
*c̃-roots hut-making, tapered and pointed tool-making and woodworking, water-drawing	c̃ -m c̃ -l c̃ -n-t c̃ -w c̃ -r c̃ -y	#89 = tapered I: stick, pole, horn, fir, splints #90 = tapered II: tapered wood, thin shaft, pole, incline #69 = notched: pierce, prick, notch, stalk, arrowhead #14 = convex/concave, hollow, arch, hollowed out, full, draw water (from well), tomb #73 = pointing upward, peak, head, horn, tooth, thorn, twig, hut #57 = lean, slope, lie down, encampment, be tired, weary, languish, die	
*k-roots hide-making, basket/container- making, engraving, digging (foraging)	k-m k-w k-n k-r k-l k-y	#74 = press together (eyes), compress, cover, blind, gnaw, nibble #48 = hollow, bent, pipe; bow, arc, dome, vault (of heaven), basket, bowl, nest, hole, pit; stoop, burden, crush #22 = dig, excavate, bore, scratch, engrave, hole, orifice, deep #93 = twist, turn round itself, hoop, lock, embrace, unite #72 = erect, lift, rise, raise up high, ascend, head, high = (1990) go, pass, walk; go beyond, leap over, cross over, excel, transcend; dagger, command, lead	
*f-roots shame/respect words, re maturity/immaturity health/illness, disabled, elderly, and dying	f-m f-n f-l f-y f-r f-w	#24 = disparage: abuse, belittle, humble, inferior, disease, sickness, suffering, shame, corpse, carcass, dust, ashes #28 = decay, ill, moldy, die, wither, disease, defect, make low #41 = depart, go; apart, separated; die, #44 = height: mature, ripe, big, adult; lofty, ascending, high #25 = dress, clothe, modesty, sheath, dwelling, sack	
*t-roots childcare: nurturance, protection, well being, carrying, discipline	t-r t-m t-l t-y t-w t-n	#98 = ill, feeble, weak, in pain; tender, delicate, slender; fresh #17 = cut, separate, not related; withered, tired, faint, emaciated, thin, suffer, perish; break, halve #20 = carry, support; endure, steadfast; attenuate, delay, fiber . . . = (1986) E. y-t = a woman who has conceived #10 = care for, be vigilant, watchful, entrust to, newly born, suckle #83 = stretch, extend, pull, increase in size, become tall	
<p>Note 1. This table presents the CVR stems corresponding to the 'cross-positional' or 'spacer' phemes, which, if Foster's stem lexicon is accepted, were likely a part of spoken UP(E). I suggest a summary thematics for each of the four clusters of stems. Stems in each cluster seem to imply a continuum of valuation, from negative to positive, of its referent skill behavior.</p> <p>Note 2. (#) lexeme numbers and meaning is that of PL (Foster 1978, 1986, 1990). A permutation without any matching lexeme indicates that no lexeme was provided in Foster PL.</p> <p>Note 3. I have noted in brackets several Foster (1978) tri-syllabic k-w stems. In later works Foster noted that the tri-syllabics are probably later than PL..</p>			

Table 9: Cultural, Spoken UP(E) Cross-Positional PL Roots as a Semantics of Shamanic Healing	
<p>*c~roots (PL root meaning: slanted, pointed, curved)</p> <p>Nuclear seme: Point, taper, prick, pointed object capable of piercing (tooth, horn, thorn, thin shaft, pole, stick, arrowhead, splint/splinter, peak, stalk); incline, slope, notch, hollow out, draw water (from well), tomb; hut, lie down, be tired, weary, languish, die</p> <p>Trauma processes: Amnesias and intrusive flashbacks; conflicted self-attacking, identification with transgressor, simulacra of conflict, freeze-attack; psychosomatic pain and somatization disorders; feeling lost, directionless, without guidance</p> <p>Healing processes: Shamanic extraction of "pains" (teeth, thorns, splinters, arrows, other demonic spirit intrusions sent by sorcerers; anamnesis, confession, self-affirmations)</p>	<p>{mental-soul}</p>
<p>*k-roots (PL root meaning: descending, downward)</p> <p>Nuclear seme: Press together, compress, cover, blindness; hollow; dome, vault, nest, hole, pit, deep, stoop, burden, crush; dig, excavate; twist, turn round itself, hoop, lock, unite; raise up, ascend; go beyond, cross over, transcend; command, lead</p> <p>Trauma processes: Repression, 'wall off against memories'; encapsulation, isolation, hibernation, suspended animation; sleep disorders; loss of vital survival instinct</p> <p>Healing processes: Hatching, rebirth, grief and acceptance of the walled-off; abreaction and catharsis, dream clarification; shamanic power animal retrieval</p>	<p>{emotional-soul}</p>
<p>*f-roots (general PL root meaning: overarching)</p> <p>Nuclear seme: Disparage, abuse, belittle, humble, make low, inferior, suffering, shame; carcass, moldy, decay, corpse, dust, ashes, depart; invalid, defect, disease, ill, wither, die; mature, ripe, big, adult; lofty, ascending, high; dress, clothe, modesty, sheath</p> <p>Trauma processes: Flooding, hypnoid states; submergence, contamination, pollution, bondage, toxic guilt and shame (sin); pleasure/pain disorders, addiction, self-mutilation; soul murder, disconnection to sea-earth-celestial beings, transgenerational haunting</p> <p>Healing processes: Purification, cleansing; unlocking body memories, kriyas, DC shift; body therapies and body energy field healing; exorcism to de-possess patient of ghosts or other demonic beings sent by sorcerers; victim awareness and forgiveness rituals</p>	<p>{physical-soul}</p>
<p>*t-roots (general PL root meaning: intrusive, contact, deictic)</p> <p>Nuclear seme: Cut, separate, not related; break, halve; feeble, withered, thin, faint, emaciated, suffer, perish; woman who has conceived; tender, delicate, fresh, juicy; care for, be vigilant, watchful, entrust to, newly born, suckle; carry, support; endure; stretch, increase in size, become tall</p> <p>Trauma processes: Memory gaps; dissociation, depersonalization, compartmentalization; dismemberment; chronic stress diseases, sympathetic, parasympathetic sudden death, catatonia, physiological shock; spirit/soul loss</p> <p>Healing processes: Wound as crack between worlds, contact with humanness, incarnatedness; return to life, as from a near death experience; shamanic soul retrieval from soul loss (land of dead, void darkness, charnel grounds, world between the worlds) or soul theft (childhood, frights, fairy world, cave of lost children), afterlife, six elements</p>	<p>{spirit-soul}</p>
<p>Note 1. See Table 8 for source of PL stems. While Table 8 identifies stems that may be interpreted as reflecting important everyday cultural skills, the same sets of stems can be interpreted as involving themes that pertain to shamanic trauma healing. I have taken the trauma- process and shamanic healing themes from current clinical literature.</p> <p>Note 2. The term 'nuclear seme' is defined in Greimas (1966).</p>	

Table 10: Remaining Foster PL Lexemes—Probably Middle Palaeolithic or Acheulian			
Semantic Field	PL Permu-tations	PL Root Lexeme	Meanings
	l-r m-w w-m n-y n-y	#19 #55 #56 #53 #54	= deficient in growth, failing, failed attempt = inner/body substance I: menses, urine, infection, mucus, speak, seed, sap, essence, water, blood = inner/body substance II: spit, vomit, cough, urine, suppurate, groundless fear, delusion = inner: den, lair, vital spot, in, at, pierce = inner flow/impulse (passion, blood, milk)
<p>Note 1. (#) lexeme numbers and meaning is that of PL (Foster 1978, 1986, 1990). A permutation without any matching lexeme indicates that no lexeme was provided in Foster PL.</p>			

34. The only remaining not yet included two syllable stems among Foster's PL stem lexicon are a miscellany of *l-r (=deficient in growth), which combines the two liquids; and a complex comprising *m-w and its reverse *w-m, and two forms of *n-y (PL #53, #54, #55, and #56), all of which are words for inwardness, inner body substances. These stems would have informed words that were probably highly emotionally charged, and which probably are survivals from an earlier Paleolithic) stage in the evolution of language. Table 10 summarizes these stems.

35. With this we have taken into account in our reconstruction of the protolanguage UP(E) the entire corpus of Foster's PL stem lexicon. This affirms the validity of her lexicon as representing the basic stems of an Upper Paleolithic spoken protolanguage, as she initially hypothesized. Foster's reconstruction of PL as a whole appears to provide sufficient stems not only to reconstruct a spoken UP(E) mapping on to geometric UP(E)—what we have termed 'spiritual' UP(E)—but also a larger set of spoken UP(E) that appears to refer to important cultural values, everyday skills and technologies, and perhaps even shamanic healing practices.

36. If this reconstruction is valid, these wider referents of 'cultural' or 'secular' UP(E) give us a window on the basic values of the UP(E) speakers, and, presumably, Upper Paleolithic European culture. While our focus in Part I was on European Upper Paleolithic inscriptions, our approach to Foster's PL stem lexicon in Part II is applicable, as Foster would argue, to similar cultures worldwide. This would seem to be confirmed by the finding of similar geometric marking traditions around the world—though perhaps not organized in quite the same way—as well as similar linguistic features, that Foster used in reconstructing PL. For brevity's sake I will only mention the X-signs recently discovered at Blombos Cave, South Africa, which are almost twice the age of similar looking X-signs in Europe.

37. In sum, our reconstruction of spoken UP(E) has a rich lexicon of some ninety stems. This complexity accords well with Foster's hypothesis that language development began in the Oldowan, expanded in the Acheulian and Mousterian, and was quite developed by the Upper Paleolithic.

Based on Foster's (1996) proposals for Acheulian and Oldowan phememes, it can be presumed that the 'corner' stems of the A, B, C, and D-semantic fields (respectively *mana, *yama, *nawa, and *waya, and their permutations) are linguistic survivals from one of these

earlier periods. These stems have been reorganized into the phememic-semantic square of UP(E), with corresponding modification in meaning.

38. In conclusion, assuming the validity of Foster's reconstruction, our proposed cross-mapping procedure results in differentiating the four basic UP(E) semes—identified in Part I—into 24 (4X6) semes, each corresponding to a canonical geometric sign. These are 24 symbols for articulating transformations of sacred, creative process. This reconstruction I designate the 'maximal hypothesis' for geometric UP(E). At the same time, the cross-mapping suggests how to reconstruct phonemic components of geometric UP(E). Results of this new analysis include (a) the discovery of the lexical stem equivalents for the previously identified graphic signs and corresponding sememes of UP(E); and (b) the identification of the paradigmatic phememes and phonological operation rules for generating the two-syllable stems that correspond to each UP(E) grapho-semantic field. About fifty stems of geometric UP(E) are postulated based on Foster's PL stem lexicon.

As distinct from geometric UP(E), some fifty remaining PL stems in Foster's lexicon appear to be root words in spoken UP(E). These roots involve semantic fields for social values such as altruism, childcare, bravery, foraging and exchange prowess, and harmony and social propriety. They also address valued everyday skills and technologies as well as shamanic healing practices. Thus, spoken UP(E) appears to constitute both a 'spiritual' and 'cultural' protolanguage. In sum, about ninety words of spoken UP(E) can be reconstructed.

The remarkable convergences between Mary LeCron Foster's (1978) PL stems and my basic decipherment of geometric UP(E) reinforces the validity of the respective analyses.

Afterthought on a Sixfold Group-Theoretic Decoding of Geometric and Phememic UP(E) v.2 2004

In writings subsequent to Foster (1978), the author replaced *kw and *xw as Primordial Language (PL) phememes with *h and *?, although she did not reconstruct replacement stems in CVR form to add to the 1978 PL lexicon. On a parallel track it has become clear to me that my ‘expanded’ decodings of graphematic and phememic UP(E), with their application of a fourfold Aristotelian logic square, could be revised by the application of a sixfold group-theoretic analysis. If so, additional key differential phememes and graphemes are required to fill out such a re-analysis. One assumption is that *h and *? may be just what we need to do this.

There seem to be two approaches the question of adding *h and *? One the one hand, they could be considered to be simply intensifiers qualifying a key difference in the nature of the fourfold actions thematized in the ‘expanded’ graphematic and phememic-semantic hypotheses for UP(E). I will amplify the contrasting qualifiers below. Suffice it for now to say that they concern the contrast between ‘continuous, unrestricted, parabolic’ action and ‘punctal, iterative, stochastic’ action, respectively *h and *? So one might hypothesize that *h and *? were used by UP(E) speakers to indicate such contrasting qualities for actions such as ‘center, bifurcate, unfold and flow’.

On the other hand, *h and *? can be regarded as phememes in complex CVR forms within the context of an overall sixfold thematic structure of UP(E). To ascertain this role requires a re-analysis of the thematic structure rules. To do this I first develop a sixfold group-theoretic analysis of the basic thematics of UP(E). I will then explore the contrastive differential semantics of *h and *? Finally, I will suggest some graphemes and phememes that fit the bill for the newly generated UP(E) themes.

It is possible to apply a group-theoretic logic to the semiotic square of UP(E). While one might think of group-theoretic mathematical functions as beyond the competence of ice age peoples ten, twenty, or thirty thousand years ago, the work of structuralist anthropologists, such as Claude Lévi-Strauss, has shown that such thinking is typical of hunter-gatherer mythologies around the world. Noting this worldwide occurrence, if we may assume that *Homo sapiens sapiens* in general had a competence for Piagetian formal operations, an assumption with which many anthropologists find no problem, I see no reason not to apply such a formal operations logic to the materials produced by our *sapiens sapiens* ancestors in Upper Paleolithic Europe.

The following listing lays out the variations of a group-theoretic formulation of transformation process, as I understand it.

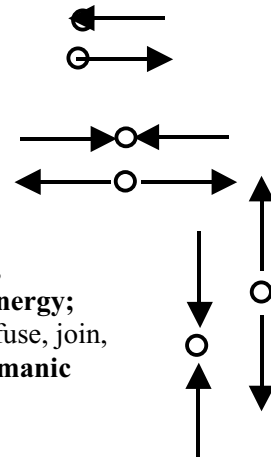
active	:	passive	→	reflexive	:	double reflexive (inverse)	
Fx(a)	:	Fy(b)	→	Fx(b)	:	Fa-1(y)	normalized
			→	Fy(a)	:	Fb-1(x)	alternative path
Fx(b)	:	Fy(a)	→	Fx(a)	:	Fb-1(y)	first derivative
			→	Fy(b)	:	Fa-1(x)	second derivative
Fa(x)	:	Fb(y)	→	Fa(y)	:	Fx-1(b)	third derivative
			→	Fb(x)	:	Fy-1(a)	fourth derivative
Fa(y)	:	Fb(x)	→	Fa(x)	:	Fy-1(b)	fifth derivative
			→	Fb(y)	:	Fx-1(a)	sixth derivative

Given our reconstruction of the expanded graphematic and phememic hypotheses for Upper Paleolithic European, UP(E), including their respective semiotic squares, the application of a group-theoretic transformation model to UP(E) would have thematic elements, something like the following. In such a formulation ‘x’ and ‘y’ constitute difference or opposition as does ‘a’ and ‘b’. (The diagrams schematize the themes.)

Fx = go back inside, inward, into yourself, your inwardness
Fy = bifurcate, cleave, cut through, bifurcate, break through, contact irrupting spirit energy; penetrate, slay, kill
a = center, in your self-potency, fertility, potentiality, (energeia);
b = twin, hold together, swing back and forth, right/left; actualize, initiate action, work, deed (ergon); conceive, be pregnant, distribute equally

a-1 (inverse) = (1/center, self-potency = de-center, center the Other; ≠ opposite, i.e., distraction, dissipation) = **de-center yourself, centering the Other, in wave-like energy;**
b-1 (inverse) = (1/twin, actualize = de-twin, engage in intercourse; ≠ opposite, i.e., fuse, join, converge, make one, unify) = **journey to Other World for ‘intercourse’ with shamanic spirits, in pulsive, iterative energy** to mend, scarify, make whole through art, communication with healing power

x-1 (inverse) = (1/go back inside = extract out of; ≠ opposite, i.e., go outward) = **extract out of Other**, as in shamanic extraction or exorcism
y-1 (inverse) = (1/bifurcate, cleave = insert into; ≠ opposite, i.e., block, defend, wall off) = **insert into the Other**, as in shamanic power or soul retrieval



Note that an inverse is not simply an opposite. I have noted opposites as distinct from inverses, indicated by ‘≠’.

Given these terms, the transformation formula’s functions can be spelled out as follows. For each function, corresponding UP(E) graphemes are indicated. I have identified the first two

function of the transformation by making the functions (F_x) and (F_y) be the key differential features of the A-semantics and B-semantics UP(E) semiotic square, letting these functions operate on (a) and (b) respectively, where (a) and (b) are pretty much defined by the ‘corner’ terms of the A-semantics and B-semantics.

F_x(a) = go back inside, inward + center in your self-potency, fertility, potentiality, (*energeia*) = **center inward, remembering and concentrating in your self-potency, fertility, potentiality (*energeia*);** CIRCLE, CIRCLE w CENTRAL DOT, SEED, VULVA-UTERUS-WOMB

F_y(b) = bifurcate, cleave, cut through, break through, contact irrupting spirit energy + twin, hold together, swing back and forth, right/left; actualize, initiate action, work, deed (*ergon*); conceive, be pregnant, distribute equally = **bifurcate, cleave through, penetrate, contact irrupting spirit energies to actualize, initiate action, work, deed (*ergon*); conceive, be pregnant, distribute equally;** DART, X, STROKE, BI-LINE, Y, CLAVIFORM-PROFILE

F_x(b) = go back inside, inward + twin, hold together, swing back and forth, right/left; actualize, initiate action, work, deed (*ergon*); conceive, be pregnant, distribute equally = **from deep within, from an ‘implicate order’ within** (to take a term from the physicist David Bohm), **emerge unfolding, moving back and forth with new life, as within a ‘morphogenetic field’** (see Ilya Prigogine and Rupert Sheldrake), **new born, blossoming, actualizing (Aristotelian *esse actu*) out of yourself, conceiving and creating;** BRANCH, FEATHER, VINE, DOT, TECTIFORM (BIRTHING HUT), OPEN ELLIPSE

F_y(a) = bifurcate, cleave, cut through, break through, contact irrupting spirit energy + center in your self-potency, fertility, potentiality, (*energeia*) = **move through this world of materiality and obstacles, with spirit, centered in self-potency, moving forward; center in that which moves as through a channel, path, passageway, valley, flowing, meandering spiraling forward around your centered and overflowing, fertile potentiality;** CHEVRON, ZIGZAG, MEANDER, SPIRAL, ARCS, RAYS

These four functions capture the thematics and graphemes of the semiotic square of UP(E), and further clarify their mutually inter-defining nature. With the identification of the inverse functions we seem to be entering a new territory of UP(E) and the Upper Paleolithic spiritual imagination.

Fa-1(y) = de-center, center the Other, wave energy; versus/+ bifurcate, cleave, cut through, break through, contact irrupting spirit energy; **de-center yourself, centering the Other in their wave-like energy (*energeia*), ritually making a sacred space for the four directions and cutting through the Other’s spiritual materialism, so that their spirit is attuned to a continuous, infinite parabolic energy wave, releasing virtues of mercy, reassurance, other-likeness, and merging in oceanic bliss;** QUADRANGULAR signs; ‘SHIELD’ or MANDALA-LIKE SHAPES plus CHAOS-SERPENT; NET, CROSSHATCH, Neolithic Europe checkerboard = earth, fields; **(Mandala)**

Fb-1(x) = de-twin, engage in intercourse, pulsive energy; versus/+ go back inside, inward; **journey to Other World for ‘intercourse’ with shamanic spirits, both guiding spirits (Tungus *ayami*) or power animals, for guidance and strength in this world, so that one’s**

spirit is attuned to a pulsive, iterative energy beneficial to mend, scarify, make whole through art, communicate with healing power; and equiprimordially, to journey within one's body or somatic field to energize, pulse lower, middle, and upper spiritual power centers (chakras) or to make pilgrimage to sacred power places to bring back healing powers, and releasing virtue of non-harm (Shamanic 'do not abuse life'; Hindu, Jain, Buddhist *ahimsa*); e.g., trance posture of lion-men of Hohle Fels and Hohlenstein-Stadel, Germany; 'Man with Buttons' from Bruniquel; LADDER, POLE, AXIS, other symbol of VERTICLE HIERARCHY, perhaps some AVIAN or 'RAKE' signs; possibly some 'BRACE' signs symbolizing intercourse; Shiva's trident (*trisuli*), Jacob's Ladder, Mohammed's Ascent, Buddhist *stupa*, Sumerian *ziggurat*; (Shamanic Journey)

Fa-1(x) = de-center, center the Other, wave energy; versus/+ go back inside, inward; de-center yourself, center the Other, and meditate upon the transpersonal Other, Great Spirit, 'God' that moves in all things, as well as being the 'god within' (as *esse actu* or *energeia ergon*), so that spirit is attuned to a continuous, infinite parabolic energy wave, releasing the virtues of enlightenment, compassion, lovingkindness, sympathetic joy in nature, and equanimity (Buddhist *karuna*, *metta*, *mudita* and *uppekha*); EYE, El Castillo EYE IN RHOMBOID, SUN, MOON, STARS or 'ASTERISKS' as at Lascaux; (Transpersonal Other)

Fb-1(y) = de-twin, engage in intercourse, pulsive energy; versus/+ bifurcate, cleave, cut through, break though; contact irrupting spirit energy; journey to Other World for 'intercourse' with shamanic spirits, to rebalance and re-attune worlds and their pulsive, iterative energies, to mend torn worlds, upper, lower and middle, split with inequity and reactionary forces of unification, releasing love (Jewish *hesed*; Christian *agape*) like a child at the breast (Psychoanalytic *object love*); e.g., trance posture from Krems, Austria; various possible geometric signs signifying balance, such as some HALVED RECTANGLE, some BRACE-LIKE signs, perhaps BI-LOBE as at Chauvet; Altamira SKATE sign; possibly some 'BRACE' signs symbolizing intercourse; possibly some HOOK or WAND signs having crosses at one end; compare Native American Thunderbird, Cretan Goddess of the Double Axe; (Re-balance Worlds)

These four inverses of the UP(E) transformation group lead us into the realm of shamanic journeying, ritual space and reverence for the transcendent. I have identified examples of geometric marking types from Upper Paleolithic Europe that have shapes that could correspond iconically to these four inverse functions.

I derive four more inverse functions as follows. In working out these four functions it becomes readily apparent that they represent what may be considered the four basic types of shamanic healing practices.

Fx-1(b) = extract out of Other; versus/+ twin, hold together, swing back and forth, right/left; actualize, initiate action, work, deed (*ergon*); conceive, be pregnant, distribute equally; conduct shamanic extraction to heal the patient, using back and forth hand movements for diagnosis, removing intrusions, e.g., 'pains' that twist around the patient's soul, sent by sorcerers, ending wasting illnesses so patient can regain initiative and work; (Shamanic Extraction)

Fy-1(a) = insert into the Other; versus/+ center your self-potency, fertility, potentiality, (*energeia*); **conduct shamanic retrieval of patient’s power animal from ‘lower world’ (cave or other depth realm of mistress or master of animals), to reinvigorate and reawaken patient, returning them to their renewed self-potency, release of survival instincts, and ending isolation, withdrawal, encapsulation, repression, defenses; (Shamanic Power Animal Retrieval)**

Fy-1(b) = insert into the Other; versus/+ twin, hold together, swing back and forth, right/left; actualize, initiate action, work, deed (*ergon*); conceive, be pregnant, distribute equally; **conduct shamanic soul retrieval, journeying to regions such as land of the dead, world between the worlds, charnel grounds, childhood, land of frights, and finding the patient’s lost or stolen ‘twin’ soul/spirit, ‘other half’, and then blowing it back into the patient, restoring the patient to him or herself, ending shock, dissociation, stress diseases, spirit loss; (Soul Retrieval)**

Fx-1(a) = extract out of Other; versus/+ center your self-potency, fertility, potentiality, (*energeia*); **cleanse, purify patient who has been polluted with toxic shame or exorcise a malevolent spirit, ghost, transgenerational haunting that possesses the patient, sent by a sorcerer, which leads them to commit shameful acts and blights their fertility, centering them in their pure potentiality, the sheathe of their majesty, and not ensorceling the Other by imposition of self -judgment or advice; (Exorcism)**

The generation of these four functions is one remarkable result of applying a sixfold group-theoretic rule to the basic semiotic square of UP(E). It shows us that the basic semiotic square resides in a larger complex of spiritual and shamanic rituals. Application of the mathematical group formula predicts the four basic modes of shamanic healing practices. They are implicit in the basic semiotic square of UP(E). Numerous studies on Upper Paleolithic art have noted aspects that are similar to shamanic traditions in other hunter-gatherer cultures. Our analysis not only confirms these speculative hypotheses, it enriches them by finding expression of them in our decipherment of Upper Paleolithic European.

In sum, a group-theoretic formulation for UP(E) thematics can be formulated thus:

Center	: Bifurcate, cleave	→	Emerge, unfold	: Mandala
		→	Flow	: Shamanic Journey
		→		: Transpersonal Other
		→		: Re-balance Worlds
		→		: Extraction
		→		: Power Animal Retrieval
		→		: Soul Retrieval
		→		: Purification, Exorcism


As an aside, there are in fact a number of examples of ‘6’ signs in Upper Paleolithic European art; these may be attempts to symbolize the overall group structure of UP(E) semiotics and thereby the Upper Paleolithic ‘mind’. See for example, the Hohlenstein-Stadel lion man

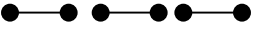
with 6 stroke marks on shoulder; Lascaux shields with six sectors; Bruniquel ‘button-man’ with six buttons, which also may indicate chakra centers.

With this identification of new themes associated with the semiotic square of UP(E), we can now turn to reconstructing the corresponding spoken UP(E) stems. One thing is immediately apparent. The second set of four inverse functions has themes that precisely match the thematics of the PL CVR forms of the four UP(E) ‘spacer’ phememes, *k, *f, *t and *c̃. We previously interpreted these stems as capable of encoding the four basic healing practices of shamanism (see Table 9). Now we see that these four shamanic healing themes are exactly what is predicted by the application of the sixfold group-theoretic transformation analysis to the thematics of the semiotic square of UP(E).

It remains then to identify the PL phememic CVR forms that would correspond to the themes of first four inverse functions. Consider now Foster’s suggestion that the consonants *h and *ʔ belongs to PL. While Foster did not reconstruct replacement stems in CVR form to add to the 1978 PL lexicon, she did reconstruct the differential features of the consonants. I have made an effort to identify CVR forms of *h and *ʔ. Table 11 lays out CVR paradigms and draws on Foster (1986, 1990, 1994) for their semantic features. The semantics is amplified by additions from Proto-Afro-Asiatic, PAA (Ehret 1995) and Middle Egyptian (Faulkner 1999 in red) as well as my own comments (in red italics and in brackets).

From this reconstruction it appears on the one hand that *h and *ʔ are qualities of any movement-form. They are meta-movement-forms that can serve to qualify the four basic UP(E) movement-forms. *h is parabolic movement (rising and falling) and continuous movement with an anticipative quality. Foster (1994) proposed the general meaning of *h as ‘trajectorial, axial, uniting two points in space; beginning, unrestricted, indeterminate, infinite’, ‘passage’; from movement of sun across heavens, dawn, zenith, setting, and also ‘transfer’, ‘change’. In Egyptian this is reflected in three primary meanings for *h, drawing upon Egyptian, time/day, go/move, and light/burn. This semantics appears to be appropriate, but with the addition that such movement is set in tension with a quadrangular outward place. In other words, the PAA and Egyptian stems refer to parabolic, rising and falling, movements, especially of the heavens (sun, moon, stars), which gives rise to the day and is a measure of the passage of time and is a paradigm for movement, powerful movement, as well as light and burning fire (the sun)—all three Foster themes—but also to that movement as over the earth. Note the role of *h in words for ‘this, that (one)’—compare Heidegger’s notion of Dasein—‘open ground, area outside a residence, courtyard, earth, soil’ and ‘field, arable land, mould’.

Table 11: Geometric and Spoken UP(E): Addition of Phemes *h and *?			
Semantic Field	PL Permutations	Root Lexeme	Meanings
<p>*h is parabolic movement (rising and falling) and continuous movement (anticipative), hence all 3 Foster (1994) primary meanings, time/day, go/move, and light/burn (where light is continuous as sun, moon, stars), but also put in tension with quadrangular outward place, i.e., mandala + earth and heavens (sun, moon, stars)</p>  <p>(Foster 1994) *h = trajectorial, axial, uniting two points in space; 'beginning, unrestricted, indeterminate, infinite'; 'passage'; from movement of sun across heavens, dawn, zenith, setting; 'transfer', 'change'</p>	h	...	= PAA *h = this, that (one); *haa = open ground, area outside residence; C: ha = outside; Ch: hy, hn, ht = earth, soil; E: h = courtyard; hh = blast fire, heat of sun, symptom of disease {heat of inflammation, fever}; PAA *hu = to fall, die; *hab = hit, strike with stick, throw a spear {parabolic throw}; *haad = move along, proceed, go along; *h-d = to rest, calm, subside, stop, stay the night; E: ah = moon; hh = to go, to march; h.h. = nh.h. = eternity {prevailing themes: see semantic field description, left}
	h-y	...	= PAA *hid = to drive, lead on right path; E: h-y- in words for hail, shout, jubilate; cf. E: ht = call out; htt = adoration; h.h.y = seek, search for; {prevailing theme: rising joy}
	h-w	...	= {E: *h ^w = in a preponderance of words for rising, lighting, burning, going forward}; E: hw = h?w = time, lifetime; neighborhood, environment, circumstances, affairs, belongings; hrw, h?w = day, daytime, daily, to light, dawn; hwt = be burnt;
	h-n	...	= PAA *h.an/*h.in = lay out, build, stand up; *h.on = projection (phallus, horn, crown of head, swelling); E: h.n = command, control, govern, in words for occupation, craft, lifetime, eternity, continually; hnn = deer {theme: projection}
	h-m	...	= PAA *ham = go, go away; or purpose, intend; zeal; *hom = thirst, eat; *huum = lower, put down, sit; *h.am = spoil; go bad; *h.am (#749) warm up, heat, red; E: hm = burning; hmm = to retreat, withdraw; {prevailing theme: falling movement, going away, lowering, setting, spoiling}
	h-r	...	= PAA *har (#786) = flow (continuous), leak, pouring out, streaming; *her/*hor = go rapidly on foot; *hur = feel good, recover from illness, be pleased; E: hrw = pleasing, satisfied, quiet; hrt = peace; hrp = sink, be immersed, suppress; hrhr = to prolong; PAA *har (#788) = become lit; {prevailing theme: falling movement with emotions of satisfaction, calm, like a pleasing sunset in contrast to *h-y, pleasing upward movement}
	h-l	...	= PAA *hal, hil = other, others; or = cry, call out, shout, praise or = become thoroughly wet, pour steadily, lastingly
*h and *? combined predicts h+? = continual, with punctive;	h-?	...	= PAA *h? = to arrive, reach, bring, walk around, step vigorously; *h.oi? = be weak; *hoo? = to burn, become hot, heat of fire, flame, warm; E: h? = descend, go down, fall, drop; in words for send, dance, tread, tread underfoot; h? = to burn, break into flame, heat, fire, warmth; h.? = go ashore; outside; and in words for mourning, wailing, tomb; heart, thoughts; food, bread; h?w = surplus, excess; h?t = in front of, foremost, superior, beginning, best; h.?₂ = flesh, body; palace; and in words for secret; go astray, stumble; plunder; joy, rejoice; food; driving over or treading upon

<p>*h and *? combined predicts ?+h = punctive, with continual</p>	<p>?-h</p>	<p>... = PAA *?ah = to moan, grieve, low (of cattle); E: ?hw = misery, trouble, pain, injury, illness, sufferer; ?ht = sorrow; ?hd = quiver, palpitate, weak; ?h. = palace, temple, enclosure; ?h.t = field, arable land, earth, mould; ?h. ? = stand, rise up, arise, persist, live; stela; ?h.a = fight, go to war, against; ?h. ? w = lifetime, long life, period (of time)</p>
<p>*? is punctal, repetitive, iterative, stochastic (random, probabilistic) movement, pulsive, peristaltic, retrospective; punctuated equilibrium of evolution. ? is fire, igniting fire and dying away fire, punctal fire, versus the continual fire and light of *h</p>  <p>(Foster 1992) ? = trajectory, onset; 'beginning or becoming'; 'restricted, finite beginning'</p>	<p>? ?-y ?-w ?-n ?-m ?-r ?-l</p>	<p>... = PAA *?a? = to cry, clamor, jabber, low, bleat {i.e., punctal sound}; E: /?/ = vulture, bird in general {i.e., punctal flight}; Yana: -?a = causative, to be, to become; -?u- = to be (there); PAA *?ats = ?aat = to set out for; go to, meet, arrive; *?as = to walk, go, come; *?ib = to sit, stay, stop; *?at/*?it/*?ut/*?its = to stop; desist from, restrain, sit; *?id = raise, lift up, build, put up high; *?up/*?ip = to convey, make move; *?aab/?iib = to burn, give off heat, glow, hot, shine, embers; *?abz = to blaze; *?adl = to act in anger; *?uuf = to blow, lungs {breathing}; *?ob, *?uc; ?ag, ?aj = swallow, bite, drink {another peristaltic movement}; *?ac = to repeat; *?as = to burn; fire, shine, glow, sun, moon; *?at = gift, grant {prevailing themes: see semantic field description, left}</p> <p>... = PAA *?ay (velar) = satisfactory, enough; *?aays = flesh, meat {prevailing theme: sufficient sustenance, pulsive};</p> <p>... = PAA *?aw = to extend, long, higher than, climbing, exciting, arise out of, fat, great, big (PL ?-w = 'begin-to be-bulk'); E: ?w = long (space or duration), continual; ?w-y = extend arm, present an offering; arouse, announce; *?aakw = to burn, be hot, fire; ?w = die, decease {to flare or burn out} {prevailing theme: waxing, like a waxing fire};</p> <p>... = PAA *?an/*?in = 'I' (1st person singular); *?ann/*?inn = 'We'; *?ins = one, someone; *?ant/*?int = you; *?an/?ann = to appear, come into view, happen, dawn, see, view; E: ?n = to turn a glance toward something, to be beautiful, nj = light, radiance, splendor; ;?nw-t = ray of light, beam {prevailing theme: personal or self fire}</p> <p>... = PAA *?am (#722) = to heat; *?am (#723) = to intend, choose; E: ?m = burn up, burn; ?mm = seize, grasp; PAA *?aam = to raise, bear, support, tip; *?im = to put into effect, cause, place, give, apply; *?oom = to stop, stay {prevailing theme: fire of iterative action}</p> <p>... = PAA *?ar = to know; *?ark – to notice, become aware of, wake, perceive; E: ?r? = to embark in a boat (PL 'begin-move-begin'); PAA *?ar (#693) = become still, stay, abide, sudden death, fall asleep; *?ar (#695) = to be raised, sky; pillar, column; sky, mountain; *?or/*?er = to burn brightly, shine, moon; {prevailing theme: punctal, stochastic movement};</p> <p>... = PAA *?il/?al (#720) = see, eye, know; *?al = ascend, go up; *?il = move to and fro; shudder, deviate, turn aside, snake {prevailing theme: punctal, stochastic movement}</p>
<p>Note 1. Root lexemes and meanings derived from of PL (Foster 1986, 1990, 1994) with addition of PAA (Ehret 1995). Meanings in RED from Faulkner (1999). My own comments in red italics and brackets { }. Note 2. /?/ = reversed ?, that is, the pharyngeal fricative.</p>		

In differential contrast, *? is punctal, repetitive, iterative, stochastic (random, probabilistic) movement, pulsive, peristaltic, and has a retrospective quality. Compare the concept of punctuated equilibrium in the theory of evolution. Similar to *h, *? is heat and light, but while *h is solar light and heat, continual and unrestricted, infinite, *? is a fire, a heart fire, a fire that ignites and dies away, a punctal fire, that requires iterative re-starting to keep it going. Foster (1992) proposed ‘trajectory, onset; beginning or becoming’, ‘restricted, finite beginning’ as the primordial meaning of *? stems.


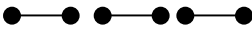
With this exploration of the contrastive differential semantics of *h and *?, it may be seen how the CVR stems of *h and *? could have been used to articulate matters pertaining to the predicted first four inverse function themes of UP(E). If *h semantics refers to continuous, indefinite or infinite, parabolic movement (rising and falling) and places this movement in tension with a notion of quadrangular outward place (courtyard, open ground outside a residence, earth), this thematics corresponds neatly with the group-theoretic predicted theme which I have summarized as ‘mandala’. This is a ritual space constituting the four directions and above and below, or heaven and earth, and the celestial movement that arcs over and under the quadrangular space that lies before one or in which healing resides. This is a de-centering that centers the Other. In PAA *h-r carries a semantics of falling into healing and peacefulness, just as *h-y carries a semantics of rising joy and adoration. The latter might also be viewed as a theme corresponding to the group-theoretic predicted theme of ‘transpersonal other’, the god or spirit that moves in all things as well as the god within, as a parabolic and infinite energy wave. This could be the symbolism behind such UP(E) marking motifs as ‘eye’, ‘eye in a rhomboid’, ‘sun, moon, or star-like’, and ‘asterisks.’ In PAA, *h-n as a stem for ‘projecting, governing, commanding’ and *h-w, for ‘light, burning, going forward, rising, dawn’ seem to articulate the sense of this inner and outer divinity, that we designate as ‘Transpersonal Other’.

In a similar manner, if *? semantics refers to punctal, iterative, stochastic, pulsive movement and emphasizes this quality in the flight of birds, the chant of voices, ignition and dying away of outer and inner heat (compare Hindu *tapas*) and ‘creative becoming’, this thematics—though not as neatly as *h—may be read as corresponding to the remaining two group-theoretic predicted themes which I have summarized as ‘shamanic journeying’ and ‘re-balancing the world’. With PAA *?-n we are in the realm of ‘radiant splendor of the Self’, and with *?-y, the satisfying and nurturing nature of the Self as Thou. To find such a power requires *?-w, going ‘higher, climbing, exciting, arising out of’, ‘offering’ and ‘arousing’ the self, *?-l, ascending and ultimately ‘seeing, knowing’, an *?-r ‘embarkation’ which is both an awakening and a kind of death (E: ?-w, PAA *?-r). This speaks of qualities of the predicted function of

‘shamanic journeying’. The pharyngeal *ʔ-r, ‘to be raised ,sky, pillar, column, sky, mountain’, and *ʔ-m, ‘raise, bear, support, tip’, seem to address the shamanic raising of and establishing of the *axis mundi*, which sets in order and balances a world or worlds that were previously out-of-balance, collapsed into each other or *ʔ-l, ‘deviant, shudder, move to and fro’.

Although as indicated there appear to be enough *PAA semantic themes to address all four group-theoretic themes, if there are only two stems, *h and *ʔ, this seems too undifferentiated for the needed UP(E) semantic competence. The group-theoretic prediction is that there were four differential UP(E) phememes, hence two other contrasting phememes in addition to *h and *ʔ. Considering articular location (see Diagram 14), one option might be that UP(E) also had palatal and velar nasals or, alternatively, /b/ and /d/ phememes. Not one of these four phonemes are found in Foster’s reconstruction of PL. If we accept this exclusion, then there seems to be only two options left. Perhaps, it was by combining *h and *ʔ, and their reverse, that two distinct additional thematics arise. But a review of Table 11 suggests this doesn’t work either. It also does not conform to the hypothesis that PL stems are of the CVR form rather than the broader CVC form. I can think of only one option that is left. This is already hinted at above. We might re-analyze Table 11 dividing the table into four phememic stem sets, into pharyngeal versus glottal and voiced versus unvoiced, *h, *h., *ʔ, and *ʔ. In Table 12 I attempt to develop a brief synopsis of PAA stem sets for these four phememes and a suggested thematics for each. (Again, our table relies heavily on PAA. This analysis can be improved by considering other language families.)

The themes that I have attempted to distill from the PAA stems in CVR form do indeed appear to correspond more or less to the predicted themes, as summarized in Table 13.

Table 12: UP(E): Re-Analysis by Phemeses *h, *h., *? and *?		
Semantic Field	Root Lexeme	Meanings
<p>*h is parabolic movement (rising and falling) and continuous movement (anticipative), hence all 3 Foster (1994) primary meanings, time/day, go/move, and light/burn (where light is continuous as sun, moon, stars), but also put in tension with quadrangular outward place, i.e., mandala + earth and heavens (sun, moon, stars)</p> 		<p>= PAA *h = this, that (one); *haa = open ground, area outside residence; Ch: hy, hn, ht = earth, soil; E: h = courtyard; hh = blast fire, heat of sun, symptom of disease {heat of inflammation, fever}; PAA *hu = to fall, die; *hab = hit, strike with stick, throw a spear {parabolic throw}; *haad = move along, proceed, go along; *h-d = to rest, calm, stop, stay; E: ah =moon; hh = to go, to march; = PAA *hid = to drive, lead on right path; E: h-y- in words for hail, shout, jubilate; cf. E: htt = adoration; {prevailing theme: rising joy} = {E: *h^w = in a preponderance of words for rising, lighting, burning, going forward}; E: hw = h?w = time, lifetime; neighborhood, environment, circumstances, affairs, belongings; hrw, h?w = day, daytime, daily, to light, dawn; hwt = be burnt; = hnn = deer</p> <p>= PAA *ham = go, go away; or purpose, intend; zeal; *hom = thirst, eat; *huum = lower, put down, sit; E. hm =burning; hmm = to retreat, withdraw; {prevailing theme: falling movement}</p> <p>= PAA *har (#786) = flow (continuous), leak, pouring out, streaming; *her/*hor = go rapidly on foot; *hur = feel good, recover from illness, be pleased; E: hrw = pleasing, satisfied, quiet; hrt = peace; hrp = sink, be immersed, suppress; hrhr = to prolong; *har (#788) = become lit; {prevailing theme: falling movement with emotions of satisfaction, calm, like a pleasing sunset}</p> <p>= PAA *hal, hil = other, others; or = cry, call out, shout, praise or = become thoroughly wet, pour steadily, lastingly</p>
<p>*? is punctal, repetitive, iterative, stochastic (random, probabilistic) movement, pulsive, peristaltic, retrospective; punctuated equilibrium of evolution. ? is fire, igniting fire and dying away fire, punctal fire, versus the continual fire and light of *h; (Foster 1992) ? = trajectory, onset; 'beginning or becoming'; 'restricted, finite beginning'</p> <p>= Shamanic Journey, ascent, flight, embarkation, death-like life-sustaining, seeing, knowing</p> 		<p>= E: /?/ = vulture, bird in general {i.e., punctal flight}; Yana: -?a = causative, to be, to become; -?u- = to be (there); PAA *?ats = ?aat = to set out for; go to, meet, arrive; *?as= to walk, go, come; *?ib = to sit, stay, stop; *?up/*?ip = to convey, make move; *?aab/?iib = to burn, give off heat, glow, hot, shine, embers; *?abz = to blaze; *?adl = to act in anger; *?uuf = to blow, lungs {breathing}; {prevailing theme: see semantic field description, left}</p> <p>= PAA *?ay (velar) = satisfactory, enough; *?aays = flesh, meat {prevailing theme: sufficient sustenance, pulsive};</p> <p>= PAA *?aw = to extend, long, higher than, climbing, exciting, arise out of , fat, great, big (PL ?-w = 'begin-to be-bulk'); E: ?w = long (space or duration), continual; ?w-y = extend arm, present an offering; arouse, announce; *?aakw = to burn, be hot, fire; ?w = die, decease {i.e., burn out} {prevailing theme: waxing, like a fire};</p> <p>= PAA *?an/*?in = 'I' (1st person singular); *?ann/*?inn = "We"; *ins = one, someone; *?ant/*?int = you; E: ?n =to turn a glance toward something, to be beautiful, nj = light, radiance, splendor; ;?nw-t = ray of light, beam {prevailing theme: personal or self fire}</p> <p>= PAA *?am (#722) = to heat; *?am (#723) = to intend, choose; E: ?m = burn up, burn; ?mm = seize, grasp; {prevailing theme: fire of iterative action}</p> <p>= PAA *?ar = to know; *?ark – to notice, become aware of, wake, perceive; E: ?r? = to embark in a boat (PL 'begin-move-begin); *?or/*?er = to burn brightly, shine, moon; {prevailing theme: punctal, stochastic movement};</p> <p>= PAA *?il/?al (#720) = see, eye, know; {prevailing theme: punctal, stochastic movement}</p>

<p>*h. = projection, command, governance, seeking; heat, red; eternity; be naked, stripped of surface to bring out inner character</p> <p>Like *h, parabolic, continuous movement, but also source of self-organization = Transcendent Other, inner and outer divine power, heat, <i>tapas</i></p>	<p>= E: h.h. = nh.h. = eternity; h.h.y = seek, search for; = PAA *h.-y = to travel, journey, move = *h.aw = beat, strike, thresh = *h.an/*h.in = lay out, build, stand up; *h.on = projection (phallus, horn, crown of head, swelling); E: h.n = command, control, govern, in words for occupation, craft, lifetime, eternity, continually = *h.-m (#747) = strip away (hair, skin), carve; *h.am (#748) = spoil, go bad; *h.am (#749) warm up, heat, red; = *h.er = to scrape off, be naked</p>
<p>*ʔ = raising up, sky pillar of celestial heavens and earth</p> <p>Like *ʔ, pulsive, iterative movement of fire-like energy, but also differentiation of energies of above and below</p> <p>= Rebalance Worlds, raising up <i>axis mundi</i> separating collapsed, unconscious, deviant worlds, establishing reparation and reconciliation of worlds, dawn, shining, gift-giving, boon-bestowing powers of a world in balance</p>	<p>= PAA *ʔaʔ = to cry, clamor, jabber, low, bleat <i>{i.e., punctal sound}</i>; = *ʔat/*ʔit/*ʔut/*ʔits = to stop; desist from, restrain, sit.; *ʔid (#667) = raise, lift up, build, put up high; *ʔis = stick up, erect, horn, penis, heap up; <i>{theme: restoration of axis mundi, separation heaven and earth, natural movement of celestials, sun, moon, stars}</i>; *ʔid (#668) = person; <i>{theme: 'person' as meaning inner axis mundi}</i>; *ʔac = to repeat <i>{theme: Iterativity}</i>; *ʔab = shine, be bright, burn, sun, day, sunlight; *ʔas = to burn; fire, shine, glow, sun, moon; *ʔat = gift, grant; *ʔats = ask for, beg; *ʔob, ʔuc = swallow, drink, eat; *ʔag; ʔaj = bite, swallow, take mouthful; cf. ʔon = swallow, suck <i>{theme: punctal, peristaltic sustenance, oral nurturance}</i>; *ʔadz = wrong, bad, ill, do or function wrongly <i>{theme: that which requires reparation, rebalancing, personal or cosmic}</i> = *ʔan/ʔann = to appear, come into view, happen, dawn, see, view; cf. *ʔaaf = see, know; = *ʔaam = to raise, bear, support, tip; *ʔim = to put into effect, cause, place, give, apply; *ʔoom = to stop, stay = *ʔar (#693) = become still, stay, abide, sudden death, fall asleep; *ʔar (#695) = to be raised, sky; pillar, column; sky, mountain; *ʔor/*ʔer = burn brightly, burn, shine, moon; *ʔuur = strength, hard, firm, greatness; cf. *ʔatl = hard, firm, strong, fat; <i>{theme: abiding restoration of axis mundi, separation heaven and earth, natural movement of celestials, sun, moon, stars}</i>; = *ʔal = ascend, go up; cf. *ʔak = rise up, ascend mountain, raise high, fly; *ʔil = move to and fro; shudder, deviate, turn aside, snake</p>
<p>Note 1. Root lexemes and meanings derived from of PL (Foster 1986, 1990, 1994) with addition of PAA (Ehret 1995). Meanings in RED from Faulkner (1999), Middle Egyptian. Note 2. /ʔ/ = reversed ʔ, that is, the pharyngeal fricative.</p>	

Table 13: UP(E): Predicted Group-Theoretic Inverse Functions and Phememe Correlates			
UP(E) Phememe	Semantic Field	Group-Theoretic Transformation: Predicted Meaning	Hypothetical Grapheme
*-h-	Parabolic, continuous movement (rising and falling) as sun, moon, stars, in tension with quadrangular outward place	= Mandala (four directions + heaven and earth) = de-center self, centering Other in mandala space of wave energy	Quadrangular; shield; cross-hatch; net
*-?-	Punctal, pulsive, repetitive, iterative, stochastic (random, probabilistic) movement, like fire, igniting and dying; ascent, flight, embarkation, death-like life-sustaining, seeing, knowing	= Shamanic Journey = journey to Other World for intercourse with shamanic spirits, guides, helpers, power animals, accessing pulsive energy to mend, make whole through art, communicate with healing power for others as within; pilgrimage to power places	Ladder, pole, axis or other symbol of vertical movement, hierarchy; avian or 'rake' signs; possibly brace signs
*-h.-	Projection, command, governance, seeking; heat, red; eternity; be naked, stripped of surface to bring out inner character; parabolic movement, but also source of self-organization; inner and outer divine power, heat, <i>tapas</i>	= Transpersonal Other = de-center self, centering Other, meditating upon transpersonal Other, the Divinity that moves in all things as well as the 'god within', attuning to its infinite parabolic energy wave	Eye, eye in rhomboid, sun, moon, star images, 'asterisks'
*-?-	Pulsive, iterative movement of fire-like energy, but also differentiation of energies of above and below; raising up, sky pillar of celestial heavens and earth; yielding dawn, shining, gift-giving, boon-bestowing powers of a world in balance, nurturing as an infant at the breast	= Re-balance Worlds = journey to Other World for 'intercourse' with shamanic spirits, to rebalance, re-attune and mend torn worlds split with reactionary forces of unification; raising up <i>axis mundi</i> separating collapsed, unconscious, deviant worlds, establishing reparation and reconciliation of worlds	Halved rectangle, bi-lobe, and other images of balance

*-c̃-	Pointed, piercing, sharp objects, hollow out, draw forth as water from a well	= Shamanic Extraction = removing sharp 'pains' from patient	?
*-k-	Descending, downward, compressed, depths, cross over, ascend, revitalize, power to lead, command	= Power Animal Retrieval = retrieving patient's power animal from Lower World and reinserting it	?
*-f-	Overarching, shame, humiliation, decay, defect, mature, clothe, sheath	= Purification, Exorcism = cleansing pollutions or exorcising malevolent spirit, ghosts, transgenerational hauntings	?
*-t-	Intrusive, disassociate, faint, entrust, refresh, carry	= Shamanic Soul Retrieval = retrieving patient's lost or stolen spirit-soul and reinserting it in patient	?

The results of the reanalysis, presented in Table 12 and 13, suggest that UP(E) probably had such doubled forms of *h and *?. It also supports the hypothesis that UP(E) had a group-theoretic sixfold set of differential features, both graphematic and phememic.

In conclusion, this reanalysis shows how the graphematic and phememic semiotic square of UP(E), with its themes of 'center', 'bifurcate', 'branch' and 'flow', is embedded in a wider group-theoretic group, which adds eight more spiritual-religious thematics. These eight new themes appear to have been articulated through eight respective phememic PL CVR stems. The First four themes also appear to have graphematic representations in the European Upper Paleolithic archaeological record. (Whether the four shamanic healing themes have such graphematic representation I leave for future research.)

This concludes Part II. In Part III I will explore the 'narrematics' of UP(E), that is, the manner in which UP(E) was used to articulate a set of six female and six male spiritual transformation processes. I will show how UP(E) generates these transformations using a combinatorics of the UP(E) 'center', 'bifurcate', 'branch' and 'flow' themes. I will present the Upper Paleolithic European archaeological evidence for each of the twelve transformation processes, interpret the meaning of each drawing upon psychoanalytic and shamanic theory, and reconstruct a poetics for each.

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