

KNO-003 · From Marks to Symbols

KNO · Ways of Knowing

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1. A Mark Is an Event Before It Is a Sign

The Question

What must be added to a physical difference before that difference represents something for someone? A mark is first a material event: pigment deposited, a surface incised, a branch broken, a hand moved. Its geometry and manufacturing sequence may be observable even when its purpose is unknown. Calling it a sign adds a functional claim: the difference was used or interpreted as standing in a relevant relation to something else.[18,19] That relation may exist without deliberate communication. Footprints can inform a tracker because they were caused by an animal's passage. Dark clouds can guide action because they correlate with weather. Such cues carry information for an observer, but the animal and cloud need not have produced them to alter another person's beliefs.[21] A signal is usually narrower: a behaviour or artifact whose production participates in communication. Human signals commonly depend on an audience's recognition that the producer is trying to make something manifest. Yet intentional production alone does not guarantee success. A private mark whose rule nobody else can infer remains an attempted signal, not an established public symbol.[16,17] The same form can change status across situations. A red patch may be a stain, an index of injury, an intentionally displayed warning or a conventional emblem. The physical mark does not contain one permanent semiotic category. Classification depends on the relation, task and interpretive community.[9,16,21]

Where That Leaves Us

Material description comes first. Representation begins only when evidence supports a relation among a form, an object or state of affairs, and an interpreter. Deliberateness, informativeness and conventionality must be tested separately, because a mark made on purpose whose rule nobody else can infer remains an attempted signal rather than an established public symbol. The physical form carries no permanent semiotic category.

2. Resemblance Opens a Door but Does Not Fix Meaning

The Question

If a sign looks like its referent, has its meaning already been secured? Iconicity is a perceived resemblance or structural correspondence between a sign and some aspect of what it denotes. A drawing can preserve outline; a gesture can imitate motion; a vocalisation can vary speed, duration or pitch in ways listeners map onto an event. Iconicity can make a novel sign easier to infer, especially before a convention exists.[9-11] Resemblance is selective rather than complete. A sketch of a bird may highlight wings, beak, flight or size. Which features count depends on the contrast set, the medium and the observer's prior knowledge. Even an apparently transparent icon therefore relies on choices about what similarity matters.[9] Experiments show that participants can create non-linguistic vocalisations that naive listeners interpret above chance, and that repeated interaction can turn initially iconic forms into shared signs. These results demonstrate

available mechanisms under controlled conditions. They do not show that every spoken word began as imitation or that iconicity follows one universal decline.[10,11] Languages combine iconicity, arbitrariness and systematicity. A sign may resemble its referent, be conventional in its community, and pattern with other signs at the same time. These properties are dimensions, not mutually exclusive boxes, and conventionalisation need not erase iconic motivation.[9]

Where That Leaves Us

Iconicity can bootstrap understanding because resemblance constrains a first guess. It cannot determine a unique interpretation, and it does not remove the need for shared attention, feedback and learned convention. Resemblance is selective, so which features count is itself a choice, and the experiments demonstrate available mechanisms under controlled conditions rather than showing that every word began as imitation.

3. Traces, Pointing and Indexical Grounding

A causal trace connects sign and source through production: smoke comes from combustion, a footprint from contact, a scar from an earlier event. An indexical gesture connects interpretation to the current situation: pointing directs another person's attention toward a location, object or event. Neither relation is equivalent to resemblance.[16,17] Human pointing is especially powerful because it operates within joint attention. Infants begin to use and understand pointing not only to request objects but also to share attention and, in some experiments, to provide information another person lacks. The gesture's meaning depends on a shared scene and on inferences about why this object is being indicated now.[16,17] The visible direction of a point underdetermines its message. Pointing at a cup might mean "take it", "that one is mine", "look at the crack" or "put it there". Gaze, timing, prior discourse and the participants' common task narrow the possibilities. Indexical anchoring reduces uncertainty; it does not eliminate interpretation.[16] Material signs can also inherit indexical force from placement. A marker beside a path, an object sealed with an account, or a sign fixed to a doorway can be understood partly through where it occurs. Moving the same form to another setting may change or destroy its function even if its shape is preserved.[18,19] This explains why context loss is so damaging in archaeology. Provenance, association, orientation, wear and repetition can show how a marked object participated in activity. Removing a motif from that network and comparing only its outline sacrifices much of the evidence that could distinguish decoration, ownership, counting, instruction or display.[18,19]

Where That Leaves Us

Indices recruit causal history and present context. They can anchor a sign to the world, but their interpretation still depends on what observers know about the situation and one another's purposes. Placement carries part of that force, so the same form moved to another setting may lose its function with its shape intact, which is why lost provenance costs an archaeological reading so much.

4. Intention and Shared Attention

Communicative intention is recursive. A producer may act so that an audience recognises the attempt to direct attention or understanding, and the audience interprets the act partly by recognising that attempt. Research on shared intentionality treats joint attention, role coordination and motive reading as central resources in human cultural cognition.[16] This does not make communication a matter of mind reading without evidence. People use gaze, bodily orientation, conventional frames, previous turns and expected relevance to infer what an act is doing. Misunderstanding remains possible, and public responses reveal whether interpretations

converge.[4,16] Children's symbolic development shows that understanding a symbol involves a dual relation. A model, picture or word is an object in its own right and also a representation of something else. Young children can focus on the concrete object so strongly that the representational relation becomes difficult, while experience with pictures, language and pretense supports increasingly flexible use.[15] Intentional communication and symbolic understanding therefore should not be collapsed. Someone may intentionally point without using an arbitrary conventional symbol; someone may competently read a conventional emblem without knowing who produced the token in front of them. Intention concerns an act; convention concerns a repeatable social rule.[15-17]

Where That Leaves Us

Shared attention creates a scene in which a sign can be interpreted and corrected. It helps establish meaning, but stable symbols require a history that extends beyond one successful act. Intention and convention should not be collapsed: intention concerns an act, convention concerns a repeatable social rule, and either can be present in a community without the other.

5. Interaction Turns Guesses into Conventions

Laboratory experimental semiotics places participants in tasks where ordinary language is restricted and new communication systems must be built. These studies do not recreate language origins. They expose, under controlled conditions, how invention, feedback, alignment and repeated use can transform signs.[1-3] In graphical communication experiments, partners initially produced relatively elaborate drawings. Through interaction, successful forms became simpler and more schematic. Mere repetition was not enough: feedback and coordination mattered, and outsiders who lacked the interaction history often found the reduced signs difficult to interpret.[2] This pattern shows how information can shift location. At first, much of the clue lies visibly in the sign's resemblance. Later, a shorter mark works because users remember earlier successful uses. Efficiency for insiders can therefore reduce immediate transparency for newcomers.[2,3] Conversation research describes a related process of grounding. Referring expressions are jointly refined until participants have enough evidence for the current purpose. Partners can form conceptual pacts, temporarily favouring one description for an object because it belongs to their shared interaction history.[4,5] A convention need not be explicitly negotiated or formally declared. It can emerge from repeated coordination when a community expects a form to be used and interpreted in a particular way, observes departures and repairs failures. What matters is not unanimous private association but sufficiently stable public practice.[1,4]

Where That Leaves Us

Symbols can grow from interaction because feedback selects workable mappings and shared history supports compression. Their apparent arbitrariness is often the residue of a path that outsiders did not witness. Repetition alone does not produce that compression, coordination does, and the efficiency insiders gain is paid for in transparency for anyone who arrives later.

6. Transmission Reshapes What Interaction Creates

A sign that works for one pair still faces another test: can people who did not participate in its invention learn and use it? Cultural transmission introduces a bottleneck. Learners receive limited examples, reconstruct a system and pass on their own productions rather than a perfect copy of every precedent.[6-8] Iterated-learning experiments show that artificial languages can become more structured and easier to learn across transmission chains. Learnability alone can also produce degenerate systems that collapse distinctions. When transmission is combined with

communicative use, pressure for compression is balanced by pressure to keep relevant meanings distinguishable.[6,7] Experiments with silent gesture similarly find that interaction and transmission make different contributions. Improvised pantomimes can become more regular and systematic when successive learners also communicate with one another. The resulting changes are population-level outcomes, not evidence that any participant designed the final system in advance.[20] Cumulative cultural evolution can preserve useful modifications and allow later users to build on them. Laboratory tasks show that social learning may generate convergence and adaptive complexity, but the outcome depends on task structure, available feedback and what is transmitted. These models identify mechanisms, not a universal timetable for symbolic evolution.[8] Transmission also creates normativity. A learner can produce a comprehensible variant and still be corrected because the community recognises a usual form. Once a precedent is teachable, repeatable and policed, symbols acquire histories of right and wrong use that exceed individual intention.[3,6]

Where That Leaves Us

Interaction establishes local common ground; transmission tests whether it can survive absent founders. Symbol systems become durable when they remain both learnable and discriminating under repeated reconstruction, since learnability by itself can collapse the distinctions a system needs. These are population-level outcomes rather than anyone's design, and they identify mechanisms rather than a timetable.

7. New Languages Reveal Structure Emerging

Homesign systems created by deaf individuals without access to a conventional sign language demonstrate that gesture can develop language-like organisation without a full linguistic model. These systems are not merely copies of surrounding speakers' gestures, although they arise within rich social environments and remain shaped by interaction.[12] Nicaraguan Sign Language developed as deaf children entered communities where they could communicate with peers. Comparative cohort research found increasing segmentation and systematic expression of motion events, showing that children were not only acquiring a finished language but also transforming a developing one.[13] Al-Sayyid Bedouin Sign Language provides another community case. Research documented systematic grammatical organisation in a relatively young language. This is one trajectory rather than a simple sequence toward a predetermined endpoint; different social networks, cohort structures and contact conditions can support different trajectories.[14] These cases establish that conventional linguistic structure can emerge within observable communities. They do not provide transparent fossils of the first human language, nor do they imply that mature sign languages are more pictorial or less complex than spoken languages. Modality changes available resources, not the status of a system as language.[12-14] The strongest inference is mechanistic: repeated use among interacting learners can create stable contrasts and combinatorial organisation. The historical origin of symbolic communication remains a broader question involving capacities, ecologies and cultural histories not reproduced by any one modern community.[13,14,20]

Where That Leaves Us

Emerging languages let researchers observe convention and structure taking shape. They illuminate processes of formation while retaining their own histories and refusing the role of living stand-ins for prehistory. Different social networks and cohort structures support different trajectories, and modality changes the resources available to a system rather than its status as a language.

8. What Ancient Marks Can and Cannot Tell Us

Engraved ochre from Blombos Cave demonstrates deliberate production of geometric patterns in a secure Middle Stone Age context. Microscopic and technological analyses can address how lines were made and whether actions formed an organised sequence. The surviving object does not disclose a spoken label or unique message.[18] Broader archaeological studies can compare motifs, manufacturing gestures, recurrence and spatial organisation. Repeated conventions across objects and contexts strengthen a claim that marks participated in shared practice. Even then, "symbolic" can name several propositions, from socially recognisable display to reference to an absent category, and each requires its own support.[18,19] Visual similarity across distant times or regions is weak evidence of identical meaning. Simple crosses, grids and parallel lines are easy to produce independently. A persuasive historical connection needs contextual continuity, shared production rules, transmission evidence or associated practices, not resemblance alone.[18,19] Absence is equally difficult to interpret. Gesture, body paint, fibre, wood, sand drawings and speech often disappear, while stone and bone survive selectively. The earliest durable mark is not necessarily the earliest symbol, and a community without preserved graphics may have possessed complex conventional communication.[19] Claims should therefore climb an evidential ladder: mark; deliberate manufacture; patterned recurrence; socially transmitted convention; referential function; specific recovered meaning. Archaeology often supports the first three and sometimes the fourth. The last two usually require an inscriptional, ethnographic or otherwise independent bridge.[18,19]

Where That Leaves Us

Ancient marks can establish sophisticated making and recurrent practice without yielding a dictionary. The honest reconstruction preserves the distance between patterned behaviour and decoded meaning. Symbolic names several different propositions, each needing its own support, and because durable media survive selectively the earliest preserved mark need not be the earliest symbol.

9. No Single Staircase from Image to Word

It is tempting to arrange traces, icons, indices and arbitrary symbols as successive evolutionary steps. Actual systems mix them. A pointing diagram may combine resemblance, spatial indexing and learned notation; a spoken word may be historically arbitrary yet contain sound symbolism; a conventional gesture may remain partly iconic.[9] Nor does simplification always mean progress toward abstraction. Signs can become shorter for practiced users, more elaborate when audiences diversify, or more iconic when a new contrast must be introduced. Change responds to communicative ecology, memory, medium and institutions.[2,3,7] Material persistence alters the scale of coordination. A durable mark can be inspected after its maker leaves, copied by people who never met the inventor and embedded in places or objects that constrain interpretation. Persistence enables wider conventions, but it also separates signs from the immediate feedback that originally grounded them.[1,18] The origin of symbols is therefore not one moment when marks acquired meaning. It is the repeated achievement of communities that align attention, test mappings, remember successful uses, teach newcomers and maintain distinctions. Forms matter because they make some inferences and reproductions easier; conventions matter because form alone never fixes the relation.[1-3,6]

Where That Leaves Us

The passage from marks to symbols is a change in coordinated practice, not a predictable sequence of shapes. Resemblance, context, intention, interaction, memory and transmission contribute in different combinations. Simplification is not progress toward abstraction, and durable media widen coordination while separating signs from the immediate feedback that first grounded them.

What We Know, and How

Developmental studies distinguish an object's physical identity from its representational role and document early joint attention and pointing. Interaction experiments show that feedback and common ground can stabilise novel signs. Transmission experiments show that learnability and communicative usefulness reshape systems across learners. Emerging sign languages demonstrate structural change in living communities, while archaeological analysis establishes manufacture and patterning under much stricter limits on meaning.[1-21]

What We Still Don't Know

We do not know one sequence by which human symbolic communication began, how much early convention depended on gesture, voice or perishable media, or when particular marks first referred to absent entities rather than organising immediate action. We also lack a general measure of when a local coordination becomes a community-wide norm. Modern experiments and emerging languages reveal mechanisms, but no surviving dataset directly observes the first transition.

What Could Change Our Minds

New sites preserving repeated marked objects within tightly resolved activity contexts could strengthen claims of shared convention. Refitting, residue, wear or production-sequence evidence could instead show that apparently similar marks served different tasks. Larger longitudinal studies of new communication systems could separate effects of interaction, network structure and transmission. Experiments that successfully predict which conventions generalise to uninvolved learners would improve the bridge from local grounding to public symbolism.

If You Remember Only One Thing

A mark becomes a symbol not through its shape, but because a community can repeatedly use, recognise, transmit and correct a relation between that form and what it stands for.

Related Articles

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