

# An Integral Map of Perspective-Taking

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By combining past insights into the nature of perspective-taking with an innovative application of leading-edge concepts in Integral Theory, this article offers the most comprehensive description of the territory of perspective-taking. It traces perspectival development through four levels of increasing complexity, shows how different types of perspective-taking enact phenomena in each of the quadrants, and utilizes the integral math notation to detail over 1,700 perspectival expressions emerging as individuals develop through the teal altitude.

### Introduction

The capacity for perspective-taking enables humans to understand and experience reality as it is seen and felt by others. By deploying attention through the eyes of another, we can achieve insight into the contours of vast realms of experience beyond our own. Several decades of study implicate this fundamental mechanism of relation as a central facilitative faculty in the cross-domain development of humans. From cognitive to interpersonal and affective to self-sense, development in many domains progresses in accordance with an individual's ability to take perspectives.

This cross-domain prevalence suggests a more fundamental role for perspective-taking in the unfolding of human development. The subject-object dynamic shifting at the core of perspective-taking is recapitulated in the subject-object transformations that occur between macro-developmental stage shifts. This recapitulating form is how development primarily occurs: the subject of one level becomes the object of the subject of the next more-encompassing level. The phylogenetic emergence of new waves of development happens similarly: each new level transcends the previous level by adding novel capacities while including the capacities of earlier levels.

If perspective-taking indeed holds a key role in development, a comprehensive map describing its core structure could prove beneficial to a deeper understanding of the central dynamics at play across development in all domains. While the investigation of perspective-taking has primarily occurred in relation to particular skill domains, an integral map of perspectival unfolding that covers the individual and collective aspects of both the perceptual and conceptual arenas, has yet to be constructed.

The aim of this article is to propose such a map, and then use it to describe the extent of the actual territory of perspective-taking available to humans as they develop. The prospect of constructing this map rests squarely on the All-Levels and All-Quadrants components of Ken Wilber's Integral Approach, and also builds upon previous work describing perspectival development. The description

of perspective-taking territory, detailing over 1,700 very real perspectival expressions, draws on Wilber's pioneering work in the development of a notation system for representing perspectives.

While the emergent aspects of this map are not yet research-verified, the two chief components of its core structure—the levels of perspective-taking and the domains in which those levels emerge and are expressed—have been investigated extensively. As this article unfolds, we will first look at prior work detailing types and levels of perspective-taking, and second, at the elements of the notation system to construct perspectival expressions. Finally, the core structural expressions at each level of complexity, along with examples of associated perspectival expressions used to enact phenomena in each quadrant-domain are examined.

## **The Nature of Perspective-Taking**

### *Definitions and Types of Perspective-Taking*

A brief exploration of the several definitions and types of perspective-taking illustrates the need for an integrated map. Before elucidating the core foundational element upon which this map is built, an integration of the partial truths of past approaches delineates the context in which the map rests. It also defines the range that an integrated definition of perspective-taking must take into account.

A loose categorization of the range perspective-taking definitions yields three general groupings: (1) Those which equate perspective-taking with role-taking, (2) those which relegate perspective-taking to the realm of objects and points-of-view, and (3) those which place perspective-taking in the realm of making assumptions or inferences about another person's attitudes, thoughts, and feelings. In addition to suggesting what perspective-taking *is*, they also indicate *what* domain perspective-taking attempts to enact: (1) perceptual, (2) conceptual, and (3) interpersonal. Together, the three definitions and three types comprise the first foundational element of an integral perspective-taking map.

The first definition concerns role-taking, an essential social-interpersonal skill, which forms the basis of the first type of perspective-taking. While investigating the connection between role-taking and moral judgments, Robert Selman, in reference to John Flavell's pioneering work on the development of role-taking in children, equates perspective-taking with role-taking, which he defines as "...the ability to understand the interaction between the self and another as seen through the other's eyes."<sup>1</sup> Writing on the same topic in a paper proposing four levels of role-taking he expands the definition slightly to read: "...the ability to view the world (including the self) from another's perspective."<sup>2</sup> A few years later, in describing interpersonal cognition, he gives role-taking a more nuanced description: "...the ability to understand self and others as subjects, to react to others as like the self,

and to react to the self's behavior from the other's point of view."<sup>3</sup> The expansion of Selman's definitions towards more inclusive and nuanced articulations points out a key aspect of an integrated definition of perspective-taking.

Equating perspective-taking with role-taking, while partially true, limits the former to only a portion of the developmental territory it truly describes. Additionally, it almost exclusively emphasizes the interpersonal type. Selman explains that in addition to applying to the impersonal domain, Piaget's concepts of egocentrism—present with preoperational thinking—and decentration—a characteristic of operational thinking—also enables perspective-taking in the interpersonal domain.<sup>4</sup> Interpersonal perspective-taking, or that which concerns the perspectives of at least two people, one subject and one object, implicitly elucidates two of the four primary domains utilized in the unified map. First, is the collective domain, or that which concerns two or more individuals, and second, the individual domain, which, while not explicitly mentioned as a type of perspective-taking, is a requisite element for the construction of the interpersonal type. The next class of definitions offers another essential element to an integrated approach to perspective-taking.

Prior to the emergence of simple role-taking capacities, perspective-taking is deployed on a world of objects as seen from various points of view. In an exploration of object construction, Edith Ackerman, defines perspective-taking as the "...ability to experience and describe the presentation of an object or display from different vantage points."<sup>5</sup> In a similar object-oriented fashion, Harriet Salatas writing with Flavell, confines perspective-taking to the developmental capacity to realize that different subjects, in different positions, have different views of the same object.<sup>6</sup> While again limiting perspective-taking to an undersized portion of its full territory, this class of definitions offers an important partial truth.

Perspective-taking, in addition to enacting the individual and collective domains, also reveals how different subjects view objective reality. Called perceptual or spatial perspective-taking, this second type enables inferences to be made about visual, auditory, tactile or other perceptual experience of both self and other.<sup>7</sup> Lawrence Kurdek and Maris Rodgon follow Ackerman in describing perceptual perspective-taking as the ability to take another person's perceptual viewpoint.<sup>8</sup> Other objective phenomena can be added to this, such as behavior, physical characteristics, and sensory data, each of which are enacted via perspective-taking in the third domain of exterior reality.

Moving from the realm of the objective to that of the subjective, the final class of definitions attempts to gain insight into the inner experience of others. Richard Boland and Ramkrishnan Tenkasi's exploration of perspective-taking in organizations rests yielded a definition featuring individual's assumptions about the knowledge, beliefs and motives of others.<sup>9</sup> Kurdek follows a similar thread, defining cognitive perspective-taking as the ability to infer the thoughts, attitudes, and intentions of another person.<sup>10</sup> Again with a focus on the subjective experience of others, Robert Marvin sees perspective-taking as an inferential rather than perceptual process through which the needs, intentions, opinions, beliefs, emotions, and thinking of others are experienced.<sup>11</sup> The shift from objective perception to subjective experience introduces conceptual perspective-taking, the third and final type.

Broadly defined by Marvin to include the less-tangible aspects of another's internal experience, conceptual perspective-taking subsumes the various elements that appear in each of these definitions.<sup>12</sup> These include: affective perspective-taking or the ability to assess the emotions, attitudes, and feelings of self and other; and cognitive-perspective-taking or the ability to assess the thought, beliefs, knowledge and intentions of self and others.<sup>13</sup> Phenomena accessed via the conceptual type resides in the fourth and final domain of interior perspective-taking.

An integrated look at the types of perspective-taking delineated by these classifications yields two distinctions—interior/exterior and individual/collective— which overlap in a manner that constitutes the four domains of the All-Quadrants component of the Integral map. These quadrant-domains are the four dimensions of reality enacted via perspective-taking: (1) interior-individual, (2) exterior-individual, (3) interior-collective, and (4) exterior-collective. Fueled by the spirit of unremitting integration, the significant contributions of past researchers are now combined with those resulting from empirical investigation into sequence of perspectival unfolding. Taken together, these two components provide the cornerstones of an integral map.

### *Levels of Perspective-Taking*

Over the last three decades, the empirical investigations of several researchers have contributed to our understanding of the structural unfolding of perspective-taking ability. Despite variance in both methods and general understanding of the nature of perspective-taking, the proposed stage models are strikingly similar if compared at the level of core structure rather than surface-level descriptions. As a result, the empirical foundations provided by this work must be included in a integral map of perspective-taking. What follows is a brief description of the stage models of four researchers: Selman and Byrne, investigating role-taking in the context of moral dilemmas; Flavell, exploring role-

taking in a social problem solving and communication context; Melvin Feffer and Vivian Gourevitch, utilizing a projective story-telling approach; and Susanne Cook-Greuter, postulating levels of perspective-taking as a product of ego development.<sup>14</sup> The comparison of their respective levels is aided by grouping them into four conceptual rather than empirical stages.

### *Stage 0*

At the earliest stage of perspective-taking, children are living an entirely egocentric existence that prevents them from taking a perspective beyond their own. Selman and Byrne, referring to this stage as egocentric role-taking, found children unable to distinguish between their true or correct perspective and the personal interpretation by self or other of social action.<sup>15</sup> Flavell's research uncovers a similar initial stage in which children are unable to recognize that another person has choice, which they offer without justification.<sup>16</sup> Susanne Cook-Greuter recognizes two stages of ego development—symbiotic and impulsive—which could fall in this Stage 0 grouping. At symbiotic stages, children are unaware of themselves as separate entities, and at the impulsive level, they are limited to a first-person perspective, which provides insight into their own experience but not another person's experience.<sup>17</sup> Feffer and Gourevitch did not describe a stage falling into this grouping.

### *Stage 1*

The next stage of perspective-taking emerges early in development and with it comes the ability to recognize that others have perspectives different from one's own. The subjective role-taking stage discovered by Selman and Byrne features the ability to understand that others have subjectivity and that they have different interpretations or experiences of a social situation because they have access to different information.<sup>18</sup> Flavell discovered children recognize that others have cognitions about themselves and other external objects.<sup>19</sup> Feffer and Gourevitch's first level, called simple refocusing, features an ability to retell a story from another person's perspective with a concomitant inability to coordinate between these perspectives, thereby affecting accuracy.<sup>20</sup> Cook-Greuter's self-protective (also called opportunist) stage features an advancement of the first-person perspective to include the awareness that another person has a perspective but not an understanding of the content of that perspective.<sup>21</sup>

### *Stage 2*

The next level of perspectival emergence refines the previous level by adding a reciprocity or coordination of perspectives that are at the same level of complexity. Called self-reflective role-taking

by Selman and Byrne, this level expands awareness of another person's perspective by adding the ability to recognize that others think and feel differently because they are themselves subjects who have perspectives on the self. This carries with it the ability to reflect on the self from the perspective of another person.<sup>22</sup> Flavell's research also indicated that children at this stage may change their behavior because they realize their own thoughts and motivations may be the objects of another's perspective-taking.<sup>23</sup> The consistent elaboration stage, described by Feffer and Gourevitch, shows similar pattern of sequential coordination between the perspectives of self and other.<sup>24</sup> Cook-Greuter describes the next two stages—rule-oriented and conformist—as featuring a similar reciprocal awareness of second-person perspectives. Whereas the self-protective stage limits the comparisons to simple, external appearances, conformist expands them to include perspectives of interior phenomena.<sup>25</sup>

### *Stage 3*

At stage 3, the last empirically recognized level of perspective-taking, a simultaneous, rather than sequential, coordination of perspectives emerges. Selman and Byrne describe their mutual role-taking stage as bringing on line two important abilities: (1) the understanding of the self's view of other and the other's view of self simultaneously, and (2) the emerging ability to differentiate the view of self and other from that of a generalized other or third person.<sup>26</sup> Flavell describes this stage as an infinite regress where the self understands that another understands that the self knows their strategy. While worded differently than Selman's description, the simultaneity of perspective coordination is the same.<sup>27</sup> Level 3, called change of perspective by Feffer and Gourevitch, also recognizes the simultaneous coordination of perspectives in interpersonal perception.<sup>28</sup> Cook Greuter's next stage, called self-aware or expert, is characterized in a manner similar to Selman's level 3 insofar as she reports the emergence of a third-person perspective. However, she describes it differently, qualifying the capacity as the act of looking at self and other as an object from a generalized third-person point of view.<sup>29</sup>

### *Levels Beyond Stage 3*

Deviating from the work of other researchers, the integral map of perspective-taking follows Cook-Greuter's lead in postulating levels beyond the third-person perspective.

Common to both is the movement away from empirically-derived levels into the realm of the conceptual. While Cook-Greuter's stages of ego development are based on a substantial body of empirical evidence, her treatment of perspective-taking beyond the expert stage thins out substantially, relying mostly on diagrams over concrete articulations on how perspective-taking unfolds beyond the third-person perspective. Figure 1 shows her conceptualizations of perspective-taking through the fifth-person level of complexity.

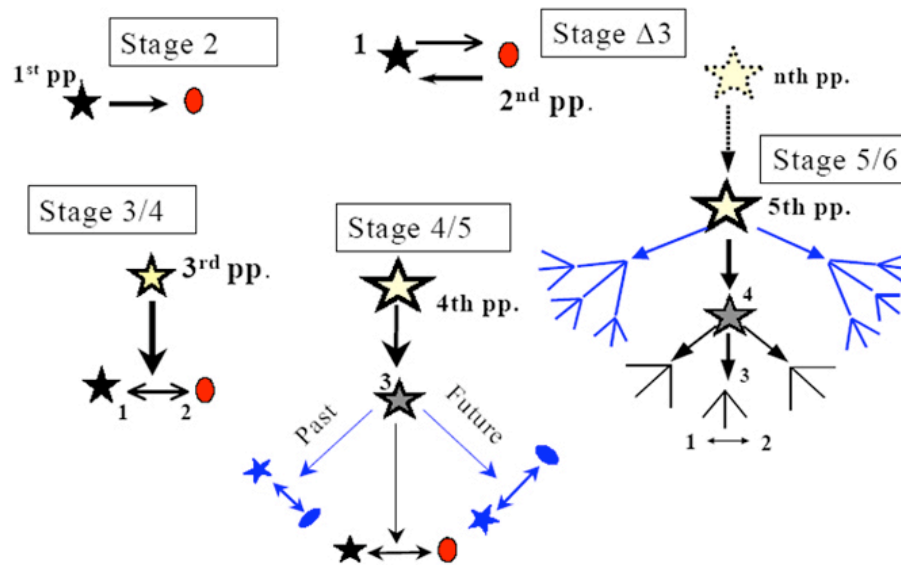


Figure 1. Perspective-Taking at Stages of Ego Development

(Adapted with permission from Cook-Greuter 2002)

The previously discussed levels of perspective-taking are indicated as stages 1 through 3/4 in the above diagram. From there, extending through stage 5/6, Cook-Greuter's explains higher levels of perspective-taking by expanding these diagrams in a patterned fashion which adds an additional subject star at every next level. At stage 4 (not shown), she describes a third-person perspective as extending into the recent past and present. At stage 4/5, she details a fourth-person perspective, described in text as a systems view that allows one to look at the self as changing over time and reacting differently in different contexts, or diagrammatically as able to take as object the third-person conception. At stage 5 (not shown), she shows an expanded fourth-person perspective that takes into account a self-embedded in history and multiple cultural contexts, and at stage 5/6, she posits a fifth-person perspective extending into an  $n^{\text{th}}$  person-perspective, which is not described in text but only understood through the diagram as the ability to take as object the perspectival complexity of the previous level.<sup>30</sup> Cook-Greuter's treatment of perspective-taking is progressive and

far-reaching, but, with her primary focus and research being on ego development, the result is not specific enough to garner a workable understanding of the nature of perspectives. In a sense, the limitation of this approach lies in its reliance on illustration to define perspective-taking. An integral map forgoes diagrams for a better-suited perspectival notation system. The result, as we will see, is a ten-fold increase in descriptive power.

### **An Integral Map of Perspective-Taking**

An Integral map's treatment of levels of perspective-taking aligns with the basic premise of the research summarized in previous section while conceptually extending it in an important way. By replacing diagrammatic and text-based descriptions with symbolic representations of each level's core structural functioning, three aims are achieved: (1) the emergence of levels is rendered clearly, (2) domain/level integration is made possible, and (3) a range of verifiable perspective-taking expressions are produced. In this section, we will combine key elements of the Integral approach with the foundation constructed by past research on types and levels. The result is a perspective-taking map that integrates quadrants, the transcend and include nature of development, and a refined utilization of the Integral math notation to extend our understanding of perspective-taking.

#### *Quadrants as Domains of Perspective-Taking*

The four domains of perspective-taking comprise a pair of critical distinctions made by the quadrants component of the Integral map. First, we have the distinction between interior and exterior phenomena, and second, the distinction between individual and collective phenomena. Taken together, these distinctions give us the quadrants shown in Figure 2.

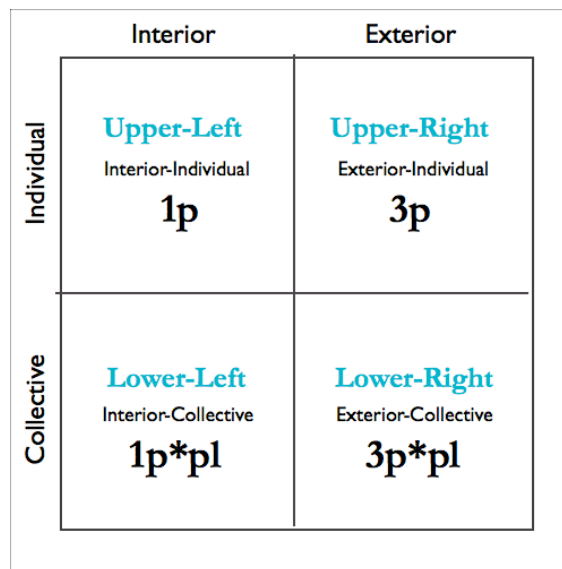


Figure 2. The All-Quadrants Component of the Integral Framework

As the four fundamental dimensions of human experience, the quadrants outline the very real domains that perspective-taking attempts to enact: objective, subjective, interobjective and intersubjective. Looking through these quadrant domains, perspective-taking subjects enact different objects. In the subjective domain, perspectival objects include individual-interior arising such as feelings, intentions, emotions, and thinking. In the objective domain, subjects investigate individual behaviors and the physical properties and characteristics of objects. In the intersubjective domain, perspectives can be taken on shared meaning, values, intentions, and other aspects of interiors in resonance between individuals or groups of individuals. Finally, in the interobjective domain, perspectives enact the intersections between individual exteriors in the form of collective behavior, system dynamics, and networks of physical interconnection. Each quadrant is a window that looks onto a distinct dimension of self and other, and it is through perspective-taking that these dimensions are experienced.

#### *The Nature of Levels in Perspective-Taking*

Even though the quadrants are the four irreducible domains of every human, full reflexive awareness of them and the perspectival objects they disclose unfolds sequentially as individuals move through levels or stages of development. The spectrum of perspective-taking presented below adheres to the transcend and include nature of development; every level transcends the previous level by adding complexity in structure and form while simultaneously including the capacities earned at previous levels. In regards to perspective-taking this translates in two ways. First, when a new level of perspective-taking ability emerges, the subject retains the ability to take perspectives at earlier levels of complexity. So, when the capacity for third-person perspective-taking emerges, the ability to enact first and second-person complexity perspectives is not lost. Second, as each new level is reached and full awareness of new quadrant-domains are gained, awareness of those domains extends down into the included levels of perspective-taking, altering the range of domains through which those less complex perspectives extend.

To more easily discern the structural complexity of perspectives at each level from the increasing range of available perspective-taking acts at each level, the former are called structural expressions and the latter, perspectival expressions. Structural expressions communicate the complexity and core form of perspective-taking at each level. The transcend and include nature of development requires a further distinction be made between emergent structural expressions, which are used to describe the novel complexity added at each new level, and included structural expressions, which describe the modified structural expressions from previous levels.

One emergent capacity added at the level of fourth-person perspective-taking substantially modifies both emergent and included structural expressions, and, is therefore worth mentioning at this time. After every quadrant-domain enters full awareness, development yields another critical distinction, altering the mode in which each domain is viewed. This distinction, which allows individuals to view each domain from the inside or the outside, renders the four quadrants into 8 distinct zones, as shown in Figure 3.

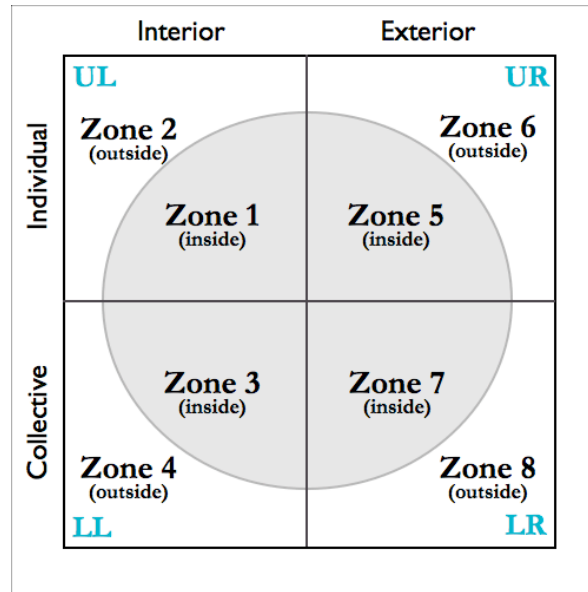


Figure 3. The Eight Zones

The circle dividing the quadrants into zones represents the holonic boundary of an individual holon or whole/part—an entity or occasion that is simultaneously a whole, in that it includes less complex holons, but is also a part of a larger whole.<sup>31</sup> An individual holon has the quadrants as native aspects of its being-in-the-world, and every quadrant domain can be viewed from the inside or the outside. This will be explained in further detail at a latter point, but, for now, consider the phenomenological difference between taking perspectives on individual interior phenomena from the inside via an introspective methodology, revealing what an interior *feels* like as compared to investigating it from the outside via a structuralist methodology, revealing what an interior *looks* like.<sup>32</sup> This additional distinction is mentioned here because it surfaces in the discussion on both the integral math notation and the structural and perspectival expressions comprising the spectrum of perspective-taking.

#### *Integral Math Notation System*

Integral math has little or nothing to do with actual mathematics. Sometimes referred to by Wilber as an Integral calculus of primordial perspectives, the notation of Integral math is imminently useful

when mapping the territory of perspectival expression. As Wilber points out, Integral calculus is simply a map, a third-person set of abstractions, but to its credit, this map of third-person symbols explicitly includes first and second person realities. This is why he also calls Integral math a mathematics of sentient beings.

When Wilber first wrote about Integral math in Excerpt C of the unpublished Volume 2 of the *Kosmos Trilogy*, he explained its dynamics by mapping out perspectives taken by individuals on specific quadrant aspects of self and other.<sup>33</sup> He used it again in his recent work, *Integral Spirituality*, to describe the typical methodologies used to enact phenomena in the 8 zones.<sup>34</sup> In this article, these two aims are combined to map the developmental emergence of perspective-taking in the 8 zones. To achieve this, we will need to first define the notation used to construct the structural and perspectival expressions. The notation sets are shown in Figure 4 and Figure 5. Only the perspectival expressions use the integral math notation.

Structural Expressions	
S	A perspective-taking subject
O	A perspectival object
M	A mode or view
M <sub>p</sub>	A plural mode
P(O)	Plural or “we”object
(S) <sub>S1</sub> or (S) <sub>S2</sub> or (S) <sub>S3</sub>	A subject set
(S x M) <sub>S1</sub> or (S x M) <sub>S2</sub> or (S x M) <sub>S3</sub>	A subject and mode set
(M x O)	The mode and object set

Figure 4. Notation System for Structural Expressions

Perspectival Expressions	
"x"	Can be read as "of." Signifies the enacting of perspectives
1p, 2p, 3p	A 1st, 2nd, or 3rd person
1p*pl, 2p*pl, 3p*pl	A 1st, 2nd, or 3rd person plural
1p(1p), 2p(1p), 3p(1p)	A 1st, 2nd, or 3rd person's first-person interior
1p(3p), 2p(3p), 3p(3p)	A 1st, 2nd, or 3rd person's third-person exterior
1p*pl(1p*pl), 2p*pl(1p*pl), 3p*pl(1p*pl)	A 1st, 2nd, or 3rd person plural's first-person plural or shared interior
1p*pl(3p*pl), 2p*pl(3p*pl), 3p*pl(3p*pl)	A 1st, 2nd, or 3rd person plural's third-person plural or shared exterior
1-p	A 1st-person mode or inside-view
3-p	A 3rd-person mode or outside-view
1-p*pl	A 1st-person plural mode
3-p*pl	A 3rd-person plural mode
1p(1-p), 2p(1-p), 3p(1-p)	A 1st, 2nd, or 3rd person's first-person view
1p(3-p), 2p(3-p), 3p(3-p)	A 1st, 2nd, or 3rd person's third-person view
1p(1-p*pl), 2p(1-p*pl), 3p(1-p*pl)	A 1st, 2nd, or 3rd person first-person plural view
1p(3-p*pl), 2p(3-p*pl), 3p(3-p*pl)	A 1st, 2nd, or 3rd person's third-person plural view
[ "+" ]	Terms in brackets separated by "+" represents a combined view

1/p, 2/p, 3/p, 1/p\*pl, 3/p\*pl

A "backslash" before a "p" or "p\*pl" means the expression is "Stopped" and the process of "knowing" begins. This is used in the perspectival object term

Figure 5. Notation System for Perspectival Expressions

These charts are provided as a general legend for reference purposes. If the meaning of any term is unclear, detailed explanation will accompany the use of expressions in the next section. Finally, we have reached the point where every component needed to describe the developing territory of perspective-taking is in place. An integration of domains and levels with the Integral math notation system provides a method for representing the manner in which humans enact the individual and shared dimensions of reality through perspective-taking, the only way through which we ever truly come to experience and understand the territory of human development and experience.

### **A Spectrum of Developmental Perspectives**

Every language system utilizes pronouns, not to refer to actual people but to perspectives that actual people can enact. An "I" doesn't necessarily mean Clint, but any subject who is speaking or enacting a first-person perspective; and this perspective is always situated in relation to other sentient beings, other first, second and third persons. As Wilber suggests, because of this, pronouns actually embed a universal mathematics of perspectives in their structure.<sup>35</sup> This makes the very notion of using a mathematics of perspectives qualitatively different in aim than that of typical mathematics. Perspectival mathematics, rather than merely representing the objective exterior connections between sentient beings as quantitative variables and abstract operations, also represents the very thing that makes us human, our sentience, our individual and shared interiors, mutual resonance, and shared perspectives. The spectrum of developmental perspectives uses this math to show how the connections between sentient beings are expressed and how the capacity to do so unfolds developmentally.

Over the first four levels of complexity alone, these connections span a range of over 1,700 perspectival expressions between the infrared and teal developmental altitudes. Developmental altitude is a content-neutral yardstick used to compare and relate the degree of development present in various developmental lines. Figure 6 shows the altitude spectrum set in relation to both the cognitive line and an estimated developmental range of perspective-taking levels.

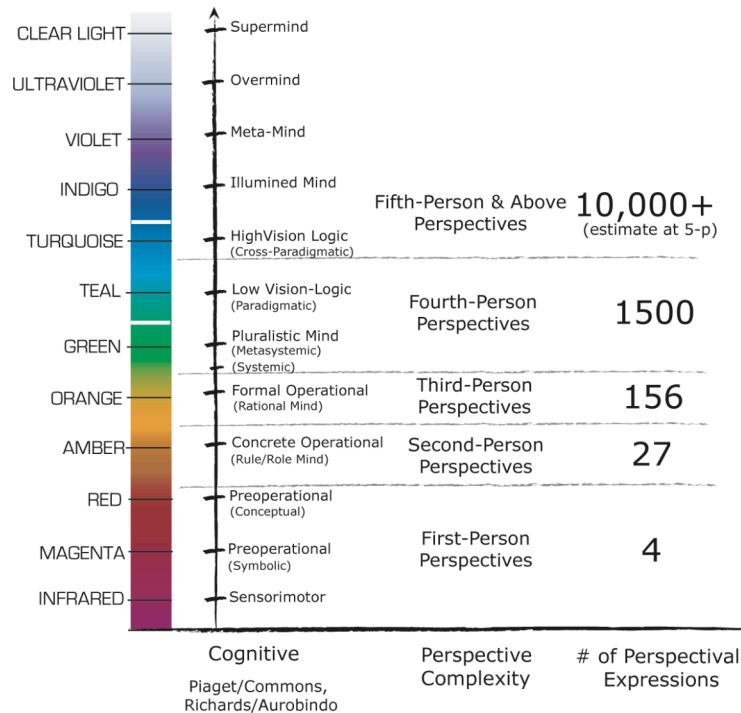


Figure 6. Developmental Altitude, Cognition and Perspective-Taking

The good news is that these expressions emerge from only a handful of core structural expressions, and it is both the emergent and included versions of these that are presented at each level. The domains enacted by structural expressions are explained alongside examples of a few perspectival expressions, used as explanatory aids to deepen and make relevant the experience of the very real territory represented in the abstract expressions.

#### *First-Person Perspective-Taking*

Perspective-taking capacity between the infrared and red altitudes is limited to a small range of perspectival expressions enacting phenomena in a limited number of quadrants. Similar in complexity to Selman and Byrne's, and Flavell's level 0 perspective-taking, emergent first-person perspective-taking is characterized by sensorimotor and preoperational thinking and egocentric ego structures. As seen in Figure 7, the structural expression at this initial level is at its most rudimentary, representing a simple object (O) of perceptive enaction.

First-Person Level	
<b>SE Emergent</b>	(O)
<b>Domains</b>	UL (Partial), UR (Partial)
<b>Total # of PE's</b>	3

Figure 7. Perspective-Taking at First-Person

The awareness of “other” has not emerged at the first-person level. Therefore, in the UL domain, perspective-taking can only enact my interior 1p(1p) and in the UR domain, my behavior, 1p(3/p), your behavior, 2p(3/p) and that object, 3p(3/p). Research indicates that micro-developmental emergence of some of the basic second-person perspective-taking capacities for enacting others perceptual or spatial perspectives emerges later in the range described here as first-person.<sup>36</sup> For the sake of macro-developmental clarity these perspective-taking abilities have been grouped in the next level of perspectival complexity. Additional investigation into the nature of perspectival emergence may yield a finer-grained map that indicates which perspectival expressions emerge at each altitude. As each level of perspectival complexity is described please keep in mind that the boundaries between these broad levels are not as rigid as this approach renders them.

*Second-Person Perspective-Taking*

As perspective-taking complexity increases with the late red and early amber altitudes, so does its range and nature of expression. Additionally, two fundamental dynamics concerning the nature of this perspective map are made apparent. First is the hidden term problem, and second, the issue of subject view. Both will be discussed after exploring the territory of the second-person level. Second-person perspective-taking, covered by Selman & Byrne and Flavell’s stage 1 and Feffer and Gourevitch’s stage 1, is driven by concrete operational cognition and the emerging ethnocentric self-identity, which begins to take into account the existence of other’s interiors. As seen in Figure 8, the emergent structural expression at this level—(S) x (O)—describes a subject’s view or perspective of an object, or for example, my view of your interior. The only included structural expression, carried forward from the first-person level, does not change in form but does now have the ability to enact a larger range of quadrant-domains.

<b>Second-Person Level</b>	
<b>SE Emergent</b>	(S) x (O)
<b>SE (1p) Included</b>	(O)
<b>Domains</b>	UL (Partial), UR (Full), LL (Partial), LR (Partial)
<b># of PE's at (2p)</b>	19
<b># of PE's at (1p)</b>	8
<b>Total # of PE's</b>	<b>27</b>

Figure 8. Perspective-Taking at Second-Person

The total number of perspectival expressions expands from 3 to 27 as this new level of complexity is added and awareness of domains increases to include at least a partial view of perspectival objects in

all four quadrants. In the UL, the emergent structural expression produces perspectival expressions that include my first person  $1p(1p)$  perspective of, say, your emotional state  $2p(1/p)$ . Taken together, this gives the perspectival expression:

$$1p(1p) \times 2p(1/p)$$

Additionally, awareness of perspective-taking capacity in others allows for this perspectival expression in the UL:

$$2p(1p) \times 1p(1/p)$$

Your first person perspective of my interior

Inhibited by limitation in accessing the interiors of others, awareness of perspectival expressions at the second-person level includes a third person's view of my interior,  $3p(1p) \times 1p(1/p)$ , but not of another second or third person's interior. In the partially accessed LL domain, perspectival awareness of shared interiors includes my view of our shared interior,  $1p(1p) \times 1p^{*pl}(1/p^{*pl})$ , and your view of the same,  $2p(1p) \times 1p^{*pl}(1/p^{*pl})$ . In the UR, access opens to a full range of perspectival iterations to include my, your, and his or her view of my, your, and his or her exterior. This also includes a first, second or third-person's view of an object. See Appendix A for a full list of these perspectival expressions. Finally, in the LR domain, partial access includes a first and second person view of our shared exterior or shared behavior. An example of a perspectival expression enacting LR phenomena is:

$$1p(1p) \times 1p^{*pl}(3/p^{*pl})$$

My first person has a perspective of our shared exterior

At the included first-person level, perspective-taking can now enact the expanded domain range afforded by the emergent properties of the second-person level. Thus, entering awareness is the interiors of others,  $2p(1/p)$  and  $3p(1/p)$ , the shared interior of our "we,"  $1p(1/p^{*pl})$ , and our shared exterior,  $1p^{*pl}(3/p^{*pl})$ .

#### *Hidden Term Problem*

At the heart of the hidden term problem is the difference between two concepts: perspectival expressions, which are components of perspectival equations, and the act of taking perspectives. Only the portion of perspectival expressions that begin with  $1p(1p)$ , my first person, actually represent perspectives that are taken at a given level. This results from the unavoidable fact that

perspective-taking begins with the subject taking the perspective, and that subject is always a first-person. If I were to say that George is happy, my first-person would be taking a perspective of his interior,  $1p(1p) \times 3p(1/p)$ . If I was aware that you could take the same perspective of George's interior, I describe it as your first person perspective on George's interior, or  $2p(1p) \times 3p(1/p)$ . This perspectival expression is stated in relation to me—I am first person talking about you, a second person to my first person. This is a perspectival expression, which can be equated with any other perspectival expression of the same perspectival object to form a perspectival equation:

$$1p(1p) \times 3p(1/p) = 2p(1p) \times 3p(1/p)$$

In one sense, this perspectival equation is a question asking whether my first person's perspective on George's interior is equal to your first person's perspective on George's interior. If we both understand his interior as happy, the equation holds up. The Integral map of perspectives shows the range of perspectival expressions that I can equate with my perspective, assuming, that is, the perspectival expression is available in my awareness. The appearance of  $2p(1p) \times 3p(1/p)$  in the UL domain at the second-person level does not mean that I can take your perspective of George's interior. Doing so actually increases the complexity of the perspective by adding a term—the hidden term—to the perspectival expression. The act of me taking your perspective of George's interior is really of a third-person level of complexity:  $1p(1p) \times 2p(1p) \times 3p(1/p)$ . If I take the perspectival expression,  $2p(1p) \times 3p(1/p)$ , as a perspective, a hidden term is implicitly added and the complexity increases. The difference here is subtle but has profound effects at emergent levels of perspective-taking. If I were developed only to a second-person level, I could set two second-person perspectival expressions on either side of an equal sign and investigate if they are the same by asking you to share your perspective on George's interior, but I could not take your perspective on George's interior myself, as I am unable to take a perspective of third-person complexity.

### *Subject View*

Before shifting our focus to the third-person level, the issue of subject view is in need of a similar explanation. Each time a subject enacts a perspectival object through an act of perspective-taking, it is done through a particular view of the subject. At this point in development, subject view shows up in two forms: a first-person view, which enacts interior objects (UL and LL), and a third-person view, which enacts third-person objects (UR, LR). These views or modes are represented by the terms  $1-p$  and  $3-p$ , respectively. In perspectival expressions they must be stated in relation to the subject taking them:  $1p(1-p)$ , my first-person view,  $1p(3-p)$ , my third-person view,  $2p(1-p)$ , your first-

person view, 2p(3-p), your third-person view, and so on. By applying this concept to the perspectival expression previously discussed, we get:

$1p(1p) \times 1p(1-p) \times 3p(1/p)$   
 My first person has my first-person  
 view of her third person's interior

$2p(1p) \times 2p(1-p) \times 3p(1/p)$   
 Your first person has your first-person view  
 of her third person's interior

The view (1-p) is used in this case because the perspectival object is an interior. The views through which these objects are enacted are not shown in the perspectival expressions at the first, second and third-person levels because individuals do not yet possess full, self-reflexive awareness of their views. This capacity emerges at the fourth-person level when a person can actually choose to view any perspectival object from a first or third-person view. This is explored in greater detail later. For now, an assumption is made that interior objects are seen through first-person subject views and exterior objects through third-person subject views. This is not to say that perspectival objects determine views, but rather that until views can be operated upon with full awareness the object is enacted through the view associated with the object domain; (1-p) for the UL and LL and (3-p) for the UR and LR.

*Third-Person Perspective-Taking*

The unfolding of the orange altitude elevates perspective-taking capacity to a third-person level of complexity. In addition to expanding the range of available perspectival expressions, formal operational cognition and an early worldcentric self-identity provide individuals with full access to every quadrant domain and an important addition to the emergent structural expression. At the third person level, individuals reach the pinnacle of perspectival development as described by Selman and Byrne, and Flavell in their description of level 3 role-taking. The emergent structural expression indicated in Figure 9 details the capacity for seeing the self and other interaction from a third-person perspective.

<b>Third-Person Level</b>	
<b>SE Emergent</b>	$(S)_{S1} \times (S)_{S2} \times (O)$
<b>SE (2p) Included</b>	$(S) \times (O)$
<b>SE (1p) Included</b>	$(O)$
<b>Domains</b>	UL, UR, LL, LR (All Full)
<b># of PE's at (3p)</b>	108
<b># of PE's at (2p)</b>	36

# of PE's at (1p)	12
<b>Total # of PE's</b>	<b>156</b>

Figure 9. Perspective-Taking at Third-Person

The emergent structural expression reads: One subject's perspective of another subject's perspective of a perspectival object. The subscripts, S1 and S2, differentiated the two subjects whose perspectives are involved. The included structural expressions from the first and second-person levels are carried forward at the third-person level. While they have not changed in form, they are now involved in generating perspectival expressions in every quadrant-domain across the full iteration of first, second, and third persons.

Despite increasing in both range, number, and complexity, perspectival expression at the third-person level are constructed from the same type of terms used at earlier levels. A few examples from the 108 third-person expressions (there are 156 total when the additional expression at the first and second person levels are included) will make this clear. First, we will look at both mine and your perspectives on George's interior as it is understood by Mary.

$1p(1p) \times 3p(1p) \times 3p(1/p)$   
 My first person takes her first person's perspective of his interior  
 "I think that Mary feels that George is upset."

$2p(1p) \times 3p(1p) \times 3p(1/p)$   
 Your first person view takes her first person's perspective of his interior  
 "You think that Mary feels that George is frustrated."

These examples of third-person perspectives on someone's interior once again indicate the nature of both the issue of perspectival expressions versus equations and the hidden term problem. If expressions with the same perspectival object are available at a given level of perspective-taking, they can be compared for equality, and, in this case, our views of George are not equal. This check is one component of an investigation of perspectival accuracy. In this third-person example, first we check if our views of Mary's view are accurate. Then, depending on our motivations we can consider a view from one level of complexity lower. If we are interested in our view of how a particular action that Mary took towards George was motivated by her perspective on his interior, we can stop here. However, if I am investigating if you and I would have acted similarly to Mary, we can compare how mine, your's, and Mary's view equated with George's view of his own interior. To do so, we look to

the following second-person complexity perspectival equations:

$$1p(1p) \times 3p(1/p) = 3p(1p) \times 3p(1/p)$$

My view of George's interior compared to his view of his interior

$$2p(1p) \times 3p(1/p) = 3p(1p) \times 3p(1/p)$$

Your view of George's interior compared to his view of his interior

$$3p(1p) \times 3p(1/p) = 3p(1p) \times 3p(1/p)$$

Mary's view of George's interior compared to his view of his interior

Returning to third-person complexity perspectives, expressions of similar form appear in the other quadrants as well. In the UR, persepectival objects are the exteriors of individuals—their behavior, appearance, and physicality—and are represented as the object terms,  $1p(3/p)$ , my exterior,  $2p(3/p)$ , your exterior, and  $3p(3/p)$ , his exterior or that physical object or “it.” In the LL and LR we get first, second and third person plural shared interiors and exteriors. If I said, “I feel that you feel that we share the deep bond of friendship,” we would have the following expression:

$$1p(1p) \times 2p(1p) \times 1p^{*pl}(1/p^{*pl})$$

My first person's perspective of your first person's perspective  
of our shared interior

In a similar fashion, if I am aware of the existence of your view of George's understanding that you and he both have the obligation to pay your taxes by April 15<sup>th</sup>, we would get:

$$2p(1p) \times 3p(1p) \times 2p^{*pl}(3/p^{*pl})$$

Your first-person's perspective of George's first person  
perspective of y'all's shared behavior

The remaining perspectival expressions—spanning first, second, and third-person complexities—at the level of third-person perspective-taking are found in Appendix A. As we begin exploring the profound changes brought on by the fourth-person level of perspective-taking, remember that any perspectival expression that does not begin in  $1p(1p)$  is not representing a perspective actually taken by you. In the taxpaying example, if I was actually to take a perspective on your view of George's

view of y'all's shared exterior, I would place the hidden term in front and find myself squarely in the territory of fourth-person perspective-taking.

*Fourth-Person Perspective-Taking*

A substantial expansion of the territory of perspective-taking occurs as individual development enters the mid to late worldcentric space from the green to late teal altitudes. Fourth person perspective-taking moves beyond the realm of empirically-validated role-taking into a place described in a limited form by Cook-Greuter. The addition of several emergent elements of complexity, including combined views and awareness of zone-based subject view, distinguishes an integral math based perspectival map as the most comprehensive conceptual outline of human perspective-taking, one which may define the contours of future research.

The fourth-person level is the first to feature an emergent structural expression that alters the included structural expressions in both form and domain. Explained earlier as an aspect of perspective-taking operating below the level of self-reflexive awareness, subject view or mode appears now as primary structural element. Put differently, perspective-taking subjects can choose to view perspectival objects from an inside, first-person (1-p) or outside, third-person (3-p) view. As seen in Figure 10, this move expands the four quadrant domains into the 8 zones, referred to as Z1 through Z8, which are now open to perspective-taking at included levels of complexity.

<b>Fourth-Person Level</b>	
<b>SE Emergent</b>	$(S \times M)_{S1} \times (S \times M)_{S2} \times (S \times M)_{S3} \times (M \times O)$
<b>SE Emergent (Combined View)</b>	$(S \times M_p)_{S1} \times [\{(S \times M)_{S2} \times (M \times (P)O)\} + \{(S \times M)_{S3} \times (M \times (P)O)\}]$
<b>SE (3p) Included</b>	$(S \times M)_{S1} \times (S \times M)_{S2} \times (M \times O)$
<b>SE (2p) Included</b>	$(S \times M) \times (M \times O)$
<b>SE (1p) Included</b>	$(M \times O)$
<b>Domains</b>	UL(Z1 + Z2), UR(Z5+Z6), LL(Z3 + Z4), LR(Z7 + Z8)
<b># of PE's at (4p)</b>	1188
<b># of PE's at (3p)</b>	216
<b># of PE's at (2p)</b>	72
<b># of PE's at (1p)</b>	24
<b>Total # of PE's</b>	<b>1500</b>

Figure 10. Perspective-Taking at Fourth-Person

Including a mode (M) component in each structural expression alters them such that each subject (S x M) and object (M x O) set now contain two terms. The first emergent expression— $(S \times M)_{S1} \times (S \times$

$M_{S2} \times (S \times M)_{S3} \times (M \times O)$ —rather complexly reads: A subject through their mode takes a perspective of subject through their mode who has a perspective of a subject through their mode who has a perspective of a perspectival object as seen through a particular mode. The included structural expressions read in a similar fashion with one less subject set for every step down the spectrum. At the included first-person level, objects alone are enacted through an inside or outside mode.

Before explaining the structural expression for combined view, an understanding of mode functioning necessitates a look at a few perspectival expressions. At a second-person level of complexity, I can take a perspective of your interior as you experience it from the inside:

$$1p(1p) \times 1p(1-p) \times 2p(1-p) \times 2p(1/p)$$

My first person (1<sup>st</sup> term) has my first-person or inside view (2<sup>nd</sup> term) of your interior (4<sup>th</sup> term) as you experience it from the inside (3<sup>rd</sup> term)

As I take a perspective on your interior experience, I do so through an inside or Z1 mode that allows me a feeling-insight into how you are experiencing your interior. Alternately, I could take a Z2 perspective of your interior by seeing it from an outside mode as you see it from the outside yourself. If I said, I see your strong valuing of justice as sourced in the green altitude value structure, we would get:

$$1p(1p) \times 1p(3-p) \times 2p(3-p) \times 2p(1/p)$$

My first person has my third-person or outside view of your interior as you experience it from the outside

In this example, rather than feeling into your interior as you feel it, I am “seeing” an aspect of your individual feeling awareness as exemplifying green altitude values. A similar dynamic is seen in a more complex fashion at the fourth-person level. Shifting to Zone 3, I could say that I think you think that Mary experiences George and his football buddies shared interiors as overly competitive (the terms and corresponding text descriptions are color coded for reference):

$$1p(1p) \times 1p(1-p) \times 2p(1p) \times 2p(1-p) \times 3p(1p) \times 3p(1-p) \times 3p(1-p) \times 3p*pl(1p*pl)$$

My first person has my first-person or inside view of your first person who has your first-person view of her first person who has her first-person view of their shared interior as he experiences is from the inside

If the first-person views (1-p) were replaced with outside or third-person views (3-p), we could get the same perspectival expression but of a Z4 perspectival object. In this case, the competitive “we” or shared interior is viewed from the outside as if looking in on the we-space rather than from the

inside, where the we-space is felt or experienced by its members. The perspectives are of the same object (shared interior or we-space), but they are enacted from different views (first-person or inside and second-person or outside). A perspective of a shared interior or exterior can be taken by anyone regardless of their location in the “we.” That is, both a member and a non-member can take an inside or outside view of a “we.” While “location” does not affect the ability to take perspective, it does influence the degree of accuracy. Non-members taking an outside view may do so more accurately than members attempting the same, and members taking an inside view will most likely do so with greater accuracy than non-members. The concept of a “we” is at the heart of the emergent structural expression for combined views, the last emergent at the fourth-person level.

### *Combined View*

The structural expression for combined-view perspectives takes on a new form as compared to the structural expressions looked at thus far. In so doing, it simplifies how the structural expression is stated textually while simultaneously capturing the complexity of the most advanced perspectives at the fourth-person level. Combined view expressions describe the perspective that one subject takes on the combined view that two other subjects have on a common perspectival object.

Combined view is more complex than it may first seem. It does not merely describe one subject’s view of an object in comparison to another’s view of the same, nor does it look exclusively at one subject’s view of the other subject’s view of the object. Instead, it investigates the shared view that two subjects have on a shared or “we” object. To accurately ascertain this shared or combined view, the perspective-taking subject must implicitly investigate several component perspectives: (1) The individual perspective each subject has of the object, (2) the perspective each subject has on how the other subject views the object, (3) the perspective each subject has on the subject we-space, and (4) finally, the coordination of all of these perspectives to get a sense of how the “we” would describe *their* view of the shared object.

A few examples will illustrate the nature of combined view expression. First, the structural expression— $(S \times Mp)_{s1} \times [\{(S \times M)_{s2} \times (M \times (P)O)\} + \{(S \times M)_{s3} \times (M \times (P)O)\}]$ —which reads: A subject through a plural mode takes a perspective of the mode through which one subject views a plural (or “we”) object as it is seen through a mode combined with (indicated by the “+”) the mode through which another subject views the plural object as seen through a mode. All of this seeming complexity describes a statement as simple and relatively common as: I think that y’all experience him as angry. One perspectival expression for this perspective is shown below:

$$1p(1p) \times 1p(1-p*pl) \times \{ \{2p(1p) \times 2p(1-p) \times 3p(1-p) \times (2p*pl)3p(1/p)\} + \{2p(1p) \times 2p(1-p) \times 3p(1-p) \times (2p*pl)3p(1/p)\} \}$$

My first person has my first-person plural view of both your first person's and your first person's combined first-person views of his interior as he experiences it from an inside view

Individual interiors and exteriors, as well as shared interiors and exteriors, appear as “we” objects in combined view expressions. These objects can be outside the “we” of the subjects whose combined view is taken—in the previous example, it was the interior of a 3<sup>rd</sup> person—or, the “we” object can be inside the “we,” either one subject’s interior or exterior or the shared interior or exterior of the “we” itself. For example, if you thought that her and I saw our shared behavior as collaborative, we would have this expression:

$$2p(1p) \times 2p(1-p*pl) \times \{ \{1p(1p) \times 1p(3-p) \times 1p(3-p) \times (1p*pl)1p*pl(3/p*pl)\} + \{3p(1p) \times 3p(3-p) \times 3p(3-p) \times (1p*pl)1p*pl(3/p*pl)\} \}$$

Your first person has your first-person plural view of both my first person's and her first person's combined third person-views of our shared exterior as she and I see it from an outside view

As compared to the previous expression, we have changed the object to a shared exterior  $1p*pl(3/p*pl)$  that is viewed from the outside Z8 mode (3-p). In hope of illustrating each variable element contained in all fourth-person combined view perspectival expressions, let us iterate one final component. If you thought that your first-person plural view of us was true not just for each of us involved but also for all third-persons anywhere, it would change to a third-person plural view (3-p\*pl), and the perspectival expression above would become:

$$2p(1p) \times 2p(3-p*pl) \times \{ \{1p(1p) \times 1p(3-p) \times 1p(3-p) \times (1p*pl)1p*pl(3/p*pl)\} + \{3p(1p) \times 3p(3-p) \times 3p(3-p) \times (1p*pl)1p*pl(3/p*pl)\} \}$$

Your first person has **your third-person plural view** of both mine and her combined third person-views of our shared exterior as she and I see it from an outside view

If each zone’s combined view expressions at the fourth-person level are added to the perspectival expressions produced by the included structural expressions at the three previous levels of complexity—which now include the mode (M) component—the complete territory of perspectives for individuals developed to the teal altitude comes in at an even fifteen-hundred perspectival expressions. Interested parties can view each of these in Appendix A. But, before getting lost in hundreds of rows of Integral math, let’s conclude this discussion with a few overdue and important questions. Why is any of this important? What is the point of creating such a map? And, what does all of this tell us about human perspective-taking?

## **Conclusion**

There is absolutely no way of getting around it. The Integral map of human perspective-taking is complex. So complex in fact, that it may seem useless. Even though it utilizes two sets of symbolic notations to simplify the vast realm of perspective, which otherwise would have to be described textually, the list of perspectival expressions is long, the notation cryptic, and the learning curve somewhat steep. But, if we step back and consider what this map is truly describing—the entire range of human perspectives from the earliest developmental structures through the near leading-edge of vertical expression—its complexity appears in a different light, possibly as the simplest way to portray a reality that is indeed far more multifarious.

Perspective-taking is the way in which we come to understand the world. Whether it is the world of objects or other sentient beings, we enact their interiors and exteriors through acts of perceptual or conceptual perspective-taking. Perspective-taking is the vehicle that carries our attention through the eyes and minds of others, allowing us to see and understand reality through a view other than our own. Perspective-taking is not only a fundamental emergent capacity, with new levels of complexity earned at each macro-developmental step, but also the way in which development expresses itself, with every next level offering a higher perspective on the level before, every new subject taking as object the previous subject. Because perspective-taking is so fundamental to development, the act of creating such a conceptual map possibly has merit on this fact alone, but the validity of this map-making is further reinforced in that it also extends into the realm of practice.

It is commonly held that taking perspectives facilitates growth in the cognitive line. The truth of this assertion has yet to be empirically verified, but, along with the desire to cultivate authentic interaction through growth in the interpersonal line—which, incidentally also features perspective-taking—it has served as an impetus to create The Meta-Practice, a perspective-training practice that utilizes the map featured here. Targeting the crucial challenge of cultivating truly authentic interactions with others, The Meta-Practice trains our under-exercised and sometimes underdeveloped ability to fluidly and accurately take perspectives in the moment-to-moment flux of relationships. Skillfully moderated interpersonal engagement is combined with precisely guided perspective training, focusing on the specific moments generated between individuals. The purpose of this is to walk people through a range of perspectival expressions from first through fourth person levels of complexity. This map informs the perspective work, but does not teach the expressions explicitly. This creates an almost non-existent barrier to entry, which allows nearly everyone to learn the dynamics of complex perspective-taking, deepen their awareness of the perspectives taken by self and others, and to foster

an accuracy of perspective. The Meta Practice aside, even working to understand the perspectival expressions described in this map seems to increase one's ability to recognize them at play in the world.

Beneath questions of its facility in the realm of practice, an inquiry remains: How does this perspective-taking map reconcile with developmental theory? One conclusion seems appropriate: Further research guided by the following questions is needed. Is perspective-taking capacity a separate line of development or is it a subset of another line such as cognitive or self-sense? Next, if the macro-developmental sequence of perspective proceeds from first-person to fourth-person and beyond, how is access to perspectival expression within the macro-levels gained? I suspect the answer will yield multiple micro-developmental pathways, emerging in a manner similar to what Kurt Fischer describes in his recent treatment of dynamic structuralism.<sup>37</sup> This research would most likely result in a greatly nuanced map that would help us understand the context dependant nature of emergent access to the territory of perspectival expressions. Finally, because perspective-taking appears as a cross-line phenomena, how does it relate to Fischer's skill theory and the notion of hierarchical complexity being a universal yardstick for cross-line development? Similar to potential conclusions about skill theory, does a spectrum of perspective-taking have more to do with what altitude is describing? The need for insight into these and surely many other questions, coupled with the desire to refine perspective training and facilitate perspectival development will guide future development of this map, presented here as a first attempt to describe perspective-taking in specific and comprehensive detail.

## APPENDIX A

### Perspectival Expressions From the First through Fourth-Person Levels

#### Territory of Perspectival Expressions

<b>(O)</b>			
1st-person Level	1p	UL    1p(1/p)	
		UR    1p(3/p) 2p(3/p) 3p(3/p)	
<b>(O)</b>			
2nd-Person Level	1p	UL    1p(1/p) 2p(1/p) 3p(1/p)	
		LL    1p*pl(1/p*pl)	
		UR    1p(3/p) 2p(3/p) 3p(3/p)	
		LR    1p*pl(3/p*pl)	
	<b>(S) x (O) or (S x M) x (O)</b>		
	2p	UL	1p(1p) x 1p(1/p)
			1p(1p) x 2p(1/p)
			1p(1p) x 3p(1/p)
		LL	2p(1p) x 1p(1/p)
			2p(1p) x 2p(1/p)
2p(1p) x 3p(1/p)			
UR		3p(1p) x (1p(1/p))	
		1p(1p) x 1p*pl(1/p*pl)	
	2p(1p) x 1p*pl(1/p*pl)		
LR	1p(1p) x 1p(3/p)		
	1p(1p) x 2p(3/p)		
	1p(1p) x 3p(3/p)		
	2p(1p) x 1p(3/p)		
	2p(1p) x 2p(3/p)		
2p(1p) x 3p(3/p)			
3p(1p) x 1p(3/p)			
3p(1p) x 2p(3/p)			
3p(1p) x 3p(3/p)			
1p(1p) x 1p*pl(3/p*pl)			
2p(1p) x 1p*pl(3/p*pl)			
<b>(O)</b>			
3rd-Person Level	1p	UL    1p(1/p) 2p(1/p) 3p(1/p)	
		LL    1p*pl(1/p*pl) 2p*pl(1/p*pl) 3p*pl(1/p*pl)	
		UR    1p(3/p) 2p(3/p) 3p(3/p)	
		LR    1p*pl(3/p*pl) 2p*pl(3/p*pl) 3p*pl(3/p*pl)	
	<b>(S) x (O)</b>		
	3p	UL	1p(1p) x 1p(1/p)
			1p(1p) x 2p(1/p)
			1p(1p) x 3p(1/p)
LL		2p(1p) x 1p(1/p)	
		2p(1p) x 2p(1/p)	
		2p(1p) x 3p(1/p)	
UR		3p(1p) x 1p(1/p)	
		3p(1p) x 2p(1/p)	
	3p(1p) x 3p(1/p)		
LR	1p(1p) x 1p*pl(1/p*pl)		
	1p(1p) x 2p*pl(1/p*pl)		
	1p(1p) x 3p*pl(1/p*pl)		
	2p(1p) x 1p*pl(1/p*pl)		
	2p(1p) x 2p*pl(1/p*pl)		
2p(1p) x 3p*pl(1/p*pl)			

## APPENDIX A

### Perspectival Expressions From the First through Fourth-Person Levels

<b>3rd-Person L</b>	<b>2p</b>	<b>UR</b>	3p(1p) x 1p*pl(1/p*pl)
			3p(1p) x 2p*pl(1/p*pl)
			3p(1p) x 3p*pl(1/p*pl)
			1p(1p) x 1p(3/p)
			1p(1p) x 2p(3/p)
			1p(1p) x 3p(3/p)
			2p(1p) x 1p(3/p)
			2p(1p) x 2p(3/p)
			2p(1p) x 3p(3/p)
		<b>LR</b>	3p(1p) x 1p(3/p)
			3p(1p) x 2p(3/p)
			3p(1p) x 3p(3/p)
<b>(S)<sub>s1</sub> x (S)<sub>s2</sub> x (O)</b>			
<b>3rd-Person Level</b>	<b>3rd-Person Level</b>	<b>UL</b>	1p(1p) x 1p(1p) x 1p(1/p)
			1p(1p) x 1p(1p) x 2p(1/p)
			1p(1p) x 1p(1p) x 3p(1/p)
			1p(1p) x 2p(1p) x 1p(1/p)
			1p(1p) x 2p(1p) x 2p(1/p)
			1p(1p) x 2p(1p) x 3p(1/p)
			1p(1p) x 3p(1p) x 1p(1/p)
			1p(1p) x 3p(1p) x 2p(1/p)
			1p(1p) x 3p(1p) x 3p(1/p)
			2p(1p) x 1p(1p) x 1p(1/p)
			2p(1p) x 1p(1p) x 2p(1/p)
			2p(1p) x 1p(1p) x 3p(1/p)
			2p(1p) x 2p(1p) x 1p(1/p)
			2p(1p) x 2p(1p) x 2p(1/p)
			2p(1p) x 2p(1p) x 3p(1/p)
			2p(1p) x 3p(1p) x 1p(1/p)
			2p(1p) x 3p(1p) x 2p(1/p)
			2p(1p) x 3p(1p) x 3p(1/p)
		<b>LL</b>	3p(1p) x 1p(1p) x 1p(1/p)
			3p(1p) x 1p(1p) x 2p(1/p)
			3p(1p) x 1p(1p) x 3p(1/p)
			3p(1p) x 2p(1p) x 1p(1/p)
			3p(1p) x 2p(1p) x 2p(1/p)
			3p(1p) x 2p(1p) x 3p(1/p)
			3p(1p) x 3p(1p) x 1p(1/p)
			3p(1p) x 3p(1p) x 2p(1/p)
			3p(1p) x 3p(1p) x 3p(1/p)
			1p(1p) x 1p(1p) x 1p*pl(1/p*pl)
			1p(1p) x 1p(1p) x 2p*pl(1/p*pl)
			1p(1p) x 1p(1p) x 3p*pl(1/p*pl)
			1p(1p) x 2p(1p) x 1p*pl(1/p*pl)
			1p(1p) x 2p(1p) x 2p*pl(1/p*pl)
			1p(1p) x 2p(1p) x 3p*pl(1/p*pl)
			1p(1p) x 3p(1p) x 1p*pl(1/p*pl)
			1p(1p) x 3p(1p) x 2p*pl(1/p*pl)
			1p(1p) x 3p(1p) x 3p*pl(1/p*pl)
			2p(1p) x 1p(1p) x 1p*pl(1/p*pl)
			2p(1p) x 1p(1p) x 2p*pl(1/p*pl)
			2p(1p) x 1p(1p) x 3p*pl(1/p*pl)
			2p(1p) x 2p(1p) x 1p*pl(1/p*pl)
			2p(1p) x 2p(1p) x 2p*pl(1/p*pl)
			2p(1p) x 2p(1p) x 3p*pl(1/p*pl)
			2p(1p) x 3p(1p) x 1p*pl(1/p*pl)
			2p(1p) x 3p(1p) x 2p*pl(1/p*pl)
			2p(1p) x 3p(1p) x 3p*pl(1/p*pl)
			3p(1p) x 1p(1p) x 1p*pl(1/p*pl)
			3p(1p) x 1p(1p) x 2p*pl(1/p*pl)



## APPENDIX A

### Perspectival Expressions From the First through Fourth-Person Levels

<b>1p</b>		$3p(3-p) \times 3p(1/p)$
	<b>Zone 3</b>	$1p(1-p) \times 1p^*pl(1/p^*pl)$
		$2p(1-p) \times 2p^*pl(1/p^*pl)$
		$3p(1-p) \times 3p^*pl(1/p^*pl)$
	<b>Zone 4</b>	$1p(3-p) \times 1p^*pl(1/p^*pl)$
		$2p(3-p) \times 2p^*pl(1/p^*pl)$
		$3p(3-p) \times 3p^*pl(1/p^*pl)$
	<b>Zone 5</b>	$1p(1-p) \times 1p(3/p)$
$2p(1-p) \times 2p(3/p)$		
$3p(1-p) \times 3p(3/p)$		
<b>Zone 6</b>	$1p(3-p) \times 1p(3/p)$	
	$2p(3-p) \times 2p(3/p)$	
	$3p(3-p) \times 3p(3/p)$	
<b>Zone 7</b>	$1p(1-p) \times 1p^*pl(3/p^*pl)$	
	$2p(1-p) \times 2p^*pl(3/p^*pl)$	
	$3p(1-p) \times 3p^*pl(3/p^*pl)$	
<b>Zone 8</b>	$1p(3-p) \times 1p^*pl(3/p^*pl)$	
	$2p(3-p) \times 2p^*pl(3/p^*pl)$	
	$3p(3-p) \times 3p^*pl(3/p^*pl)$	
<b>(S x M) x (M x O)</b>		
<b>2p</b>	<b>Zone 1</b>	$1p(1p) \times 1p(1-p) \times 1p(1-p) \times 1p(1/p)$
		$1p(1p) \times 1p(1-p) \times 2p(1-p) \times 2p(1/p)$
		$1p(1p) \times 1p(1-p) \times 3p(1-p) \times 3p(1/p)$
		$2p(1p) \times 2p(1-p) \times 1p(1-p) \times 1p(1/p)$
		$2p(1p) \times 2p(1-p) \times 2p(1-p) \times 2p(1/p)$
		$2p(1p) \times 2p(1-p) \times 3p(1-p) \times 3p(1/p)$
		$3p(1p) \times 3p(1-p) \times 1p(1-p) \times 1p(1/p)$
		$3p(1p) \times 3p(1-p) \times 2p(1-p) \times 2p(1/p)$
		$3p(1p) \times 3p(1-p) \times 3p(1-p) \times 3p(1/p)$
	<b>Zone 2</b>	$1p(1p) \times 1p(3-p) \times 1p(3-p) \times 1p(1/p)$
		$1p(1p) \times 1p(3-p) \times 2p(3-p) \times 2p(1/p)$
		$1p(1p) \times 1p(3-p) \times 3p(3-p) \times 3p(1/p)$
		$2p(1p) \times 2p(3-p) \times 1p(3-p) \times 1p(1/p)$
		$2p(1p) \times 2p(3-p) \times 2p(3-p) \times 2p(1/p)$
		$2p(1p) \times 2p(3-p) \times 3p(3-p) \times 3p(1/p)$
		$3p(1p) \times 3p(3-p) \times 1p(3-p) \times 1p(1/p)$
		$3p(1p) \times 3p(3-p) \times 2p(3-p) \times 2p(1/p)$
		$3p(1p) \times 3p(3-p) \times 3p(3-p) \times 3p(1/p)$
	<b>Zone 3</b>	$1p(1p) \times 1p(1-p) \times 1p(1-p) \times 1p^*pl(1/p^*pl)$
		$1p(1p) \times 1p(1-p) \times 2p(1-p) \times 2p^*pl(1/p^*pl)$
		$1p(1p) \times 1p(1-p) \times 3p(1-p) \times 3p^*pl(1/p^*pl)$
		$2p(1p) \times 2p(1-p) \times 1p(1-p) \times 1p^*pl(1/p^*pl)$
		$2p(1p) \times 2p(1-p) \times 2p(1-p) \times 2p^*pl(1/p^*pl)$
		$2p(1p) \times 2p(1-p) \times 3p(1-p) \times 3p^*pl(1/p^*pl)$
$3p(1p) \times 3p(1-p) \times 1p(1-p) \times 1p^*pl(1/p^*pl)$		
$3p(1p) \times 3p(1-p) \times 2p(1-p) \times 2p^*pl(1/p^*pl)$		
$3p(1p) \times 3p(1-p) \times 3p(1-p) \times 3p^*pl(1/p^*pl)$		
<b>Zone 4</b>	$1p(1p) \times 1p(3-p) \times 1p(3-p) \times 1p^*pl(1/p^*pl)$	
	$1p(1p) \times 1p(3-p) \times 2p(3-p) \times 2p^*pl(1/p^*pl)$	
	$1p(1p) \times 1p(3-p) \times 3p(3-p) \times 3p^*pl(1/p^*pl)$	
	$2p(1p) \times 2p(3-p) \times 1p(3-p) \times 1p^*pl(1/p^*pl)$	
	$2p(1p) \times 2p(3-p) \times 2p(3-p) \times 2p^*pl(1/p^*pl)$	
	$2p(1p) \times 2p(3-p) \times 3p(3-p) \times 3p^*pl(1/p^*pl)$	
	$3p(1p) \times 3p(3-p) \times 1p(3-p) \times 1p^*pl(1/p^*pl)$	
	$3p(1p) \times 3p(3-p) \times 2p(3-p) \times 2p^*pl(1/p^*pl)$	
	$3p(1p) \times 3p(3-p) \times 3p(3-p) \times 3p^*pl(1/p^*pl)$	
<b>Zone 5</b>	$1p(1p) \times 1p(1-p) \times 1p(1-p) \times 1p(3/p)$	
	$1p(1p) \times 1p(1-p) \times 2p(1-p) \times 2p(3/p)$	
	$1p(1p) \times 1p(1-p) \times 3p(1-p) \times 3p(3/p)$	
	$2p(1p) \times 2p(1-p) \times 1p(1-p) \times 1p(3/p)$	
	$2p(1p) \times 2p(1-p) \times 2p(1-p) \times 2p(3/p)$	
	$2p(1p) \times 2p(1-p) \times 3p(1-p) \times 3p(3/p)$	
	$3p(1p) \times 3p(1-p) \times 1p(1-p) \times 1p(3/p)$	
	$3p(1p) \times 3p(1-p) \times 2p(1-p) \times 2p(3/p)$	
	$3p(1p) \times 3p(1-p) \times 3p(1-p) \times 3p(3/p)$	
<b>Zone 6</b>	$1p(1p) \times 1p(3-p) \times 1p(3-p) \times 1p(3/p)$	
	$1p(1p) \times 1p(3-p) \times 2p(3-p) \times 2p(3/p)$	
	$1p(1p) \times 1p(3-p) \times 3p(3-p) \times 3p(3/p)$	
	$2p(1p) \times 2p(3-p) \times 1p(3-p) \times 1p(3/p)$	
	$2p(1p) \times 2p(3-p) \times 2p(3-p) \times 2p(3/p)$	
	$2p(1p) \times 2p(3-p) \times 3p(3-p) \times 3p(3/p)$	
	$3p(1p) \times 3p(3-p) \times 1p(3-p) \times 1p(3/p)$	
	$3p(1p) \times 3p(3-p) \times 2p(3-p) \times 2p(3/p)$	
	$3p(1p) \times 3p(3-p) \times 3p(3-p) \times 3p(3/p)$	









































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