Exhibit A

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Parties Proposed Claim Constructions for Claim Terms in U.S. Patent No. 5,276,785

Term	**Plaintiffs' Proposed Construction**	**Plaintiffs' Support**	**Defendant's Proposed Construction**	**Defendant's Support**
point of interest (claims 52 and 55)	**PARTIES' AGREED CONSTRUCTION:** A point indicated by the user and relative to which the viewpoint can move	**Specification:** "A 'point of interest' or 'POI' is a point indicated by the user and relative to which the viewpoint can move." (7:49-51).	**PARTIES' AGREED CONSTRUCTION:** A point indicated by the user and relative to which the viewpoint can move	**Specification:** "A 'point of interest' or 'POI' is a point indicated by the user and relative to which the viewpoint can move." (col. 7, lines 49-51). **Extrinsic Evidence:** Testimony (Robertson Dep. 154:16-155:1.) Other Extrinsic Evidence MacKinlay et al., "Rapid Controlled Movement Through a Virtual 3D Workspace," *Computer Graphics*, Vol. 24, No. 4, August 1990 ("Rapid") "The key idea is to have the user indicate a point of interest (target) on a 3D object and use the distance to this target to move the viewpoint logarithmi¬cally,

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				by moving the same relative percentage of distance to the target on every animation cycle." (Rapid, p. 171, Abstract). "The key idea is to have the user select a 3D point of interest (the target) on the surface of an object." (Rapid, p. 171, section 1, col. 2). "A Point of Interest (POI) is a location on the surface of an object in the workspace." (Rapid, p. 173, section 4, col. 1).
viewpoint coordinate data (claims 1 and 52)	Information representing the position of the viewpoint in a three dimensional workspace	**Specification:** "In order to present a three-dimensional workspace, a system may store data indicating "coordinates" of the position of an object, a viewpoint, or other display feature in the workspace. Data indicating coordinates	The position on the x-axis, the y-axis, and the z-axis in a three-dimensional workspace from which the workspace is viewed	**Specification:** "The present invention provides techniques for operating a system to produce the perception of a moving viewpoint within a three-dimensional workspace." (col. 2, lines 14-16).

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		of a display feature can then be used in presenting the display feature so that it is perceptible as positioned at the indicated coordinates." (6:56-62) "Viewpoint 14 is shown at the origin of a coordinate system, oriented with its axis of viewing along the z axis" (9:5-7) Figure 1, item 14 and x, y and z axes "Viewpoint data structure 244 can include coordinate data indicating a position of the viewpoint within a three-dimensional workspace, data indicating a direction of gaze, and data indicating a direction of body." (14:9-15)		"A three-dimensional workspace is typically perceived as being viewed from a position within the workspace, and this position is the 'viewpoint.'" (col. 6, lines 50-52). "This aspect is further based on the discovery that this problem can be solved by performing POI approach asymptotically based on coordinate data indicating the positions of the viewpoint and the POI in the three-dimensional workspace." (col. 2, lines 54-58). **Extrinsic Evidence:** Testimony Robertson Dep. 154:16-155:1. Other Extrinsic Evidence "*eye*$_x$, *eye*$_y$, *eye*$_z$, *poi*$_x$, *poi*$_y$, and *poi*$_z$ are the world

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				coordinates of the viewpoint and the POI." (Rapid, p. 173, section 4, col. 2).
user input means for providing signals (claim 52)	This is a means plus function element that should be construed pursuant to § 112, ¶ 6. Function: providing signals based on actions of a user Corresponding structure: one or more user input devices that provide signals based on actions of a user, such as a keyboard, a mouse, a multidimensional input device such as a VPL glove or other input device and each	**Specification:** "'User input means' is means for providing signals based on actions of a user. User input means can include one or more 'user input devices' that provide signals based on actions of a user, such as a keyboard or a mouse. The set of signals provided by user input means can therefore include data indicating mouse operation and data indicating keyboard operation." (5:56-62) "This technique can be implemented with a pointing device such as a mouse. The user can click a mouse button to indicate a region on the surface of the	Structure: any two of a computer keyboard or its equivalent, a computer mouse or its equivalent, or a VPL glove or its equivalent Function: providing signals	**Specification**: "While requesting viewpoint motion with a keyboard, the user can independently request POI motion with the mouse." (Abstract). "One aspect of the invention is based on the recognition of a basic problem in moving viewpoint in a three-dimensional workspace. It is frequently desirable to move the viewpoint closer to a specific target. For example, a user may wish to examine a detail of an object at close range. Conventional techniques do not provide an easy way for the user to obtain such

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	of their equivalents.	object to which the pointer is currently pointing. The user can also provide a signal requesting viewpoint motion toward an indicated point in the region, referred to as the "point of interest" or "POI." (2:37-44) "Signals from user input means can request motion of the viewpoint and motion of the POI. If the user can request viewpoint and POI motion separately and can request both types of motion simultaneously, the user input means is structured so that the use can request viewpoint motion and POI motion 'independently.'" (8:5-11) "The step in box 176 begins by obtaining a new ray from a user signal, which can be received in the steps in boxes 32 and 36 in FIG.		viewpoint motion." (col. 2, lines 25-32). "This aspect is further based on the discovery of a user interface technique that solves this problem. The user can indicate a target region and, in response, the viewpoint moves to an appropriate viewing position." (col. 2, lines 33-36). "This technique can be implemented with a pointing device such as a mouse. The user can click a mouse button to indicate a region on the surface of the object to which the pointer is currently pointing. The user can also provide a signal requesting viewpoint motion toward an indicated point in the region, referred to as the 'point of interest' or 'POI'."

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		3 from a mouse or other user input device that can indicate a ray in a three-dimensional workspace." (12:22-26). "The step in box 180 branches based on a signal selecting a type of viewpoint motion, which can be received in the steps in boxes 32 and 36 in FIG. 3 from keys on a keyboard or mouse." (12:46-49). "The invention could also be implemented with a multidimensional input device such as a VPL glove to point a ray into three dimensional workspace. The same input device could also be used to request viewpoint motion, such as by squeezing to indicate a requested type of motion." (20:8-14).		(col. 2, lines 37-43). **Extrinsic Evidence**: Testimony (Robertson Dep. 58:10-14, 58:17-63:9.) (Robertson Dep. 89:23-25, 90:12-91:8.) (Robertson Dep. 154:16-155:1.) Other Extrinsic Evidence "We have implemented a viewpoint movement interface that includes this function¬ality as part of an environment with multiple workspaces called 3D Rooms [8,12]. The movement interface uses the middle mouse button (on a 3-button mouse) to adjust the POI and two keys on the keyboard to indicate either forward or backward logarithmic motion. This

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				design separates the functionality of basic POI movement to different hands, the mouse hand for adjusting the POI and the keyboard hand for initiating logarithmic motion. The current interface is easy to use and integrates with our general viewpoint movement interface that uses virtual joysticks to control the velocity of a virtual walk around a 3D room." (Rapid, p. 173, section 4, col. 1).
the user can request viewpoint motion and point of interest motion independently (claim 52)	The user can request viewpoint motion and/or point of interest motion separately or simultaneously	**Specification:** "Signals from user input means can request motion of the viewpoint and motion of the POI. If the user can requires viewpoint and POI motion separately and can request both types of motion simultaneously, the user input means is structured so that the use can request viewpoint	A user can request viewpoint and point of interest motion separately through different user input devices	**Specification**: "While requesting viewpoint motion with a keyboard, the user can independently request POI motion with the mouse." (Abstract). "The viewpoint's direction of orientation 'shifts' when it changes by some angle, referred to as a 'shift angle.'

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		motion and POI motion 'independently." For example, the user can operate a mouse or other pointing device to request POI motion with one hand and can independently operate keys on a keyboard to request viewpoint motion with the other hand." (8:5-14). "User input means can include one or more 'user input devices' that provide signals based on actions of a user, such as a keyboard or a mouse." (5:57-60). See also '785 patent, 4:27-47		The direction of orientation can shift without viewpoint motion. For example, the direction of orientation can shift by an angle that brings a POI closer to the center of the field of view. Signals from user input means can request motion of the viewpoint and motion of the POI. If the user can request viewpoint and POI motion separately and can request both types of motion simultaneously, the user input means is structured so that the user can request viewpoint motion and POI motion 'independently.' For example, the user can operate a mouse or other pointing device to request POI motion with one hand and can independently operate keys on a keyboard to request viewpoint motion with the other hand." (col.

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				8, lines 5-14). Figure 7 (*see* col. 12, lines 9-19) ("FIG. 7 illustrates viewpoint motion together with point of interest motion. Surface 140 is perceptible in a three-dimensional workspace, and includes POI 142 and POI 144. From initial viewpoint 150, radial motion is requested toward POI 142, so that an image is presented from viewpoint 152 on the ray from POI 142 through viewpoint 150. Then, while the request for radial motion toward the POI continues, a request to move to POI 144 is also received, so that an image is presented from viewpoint 154 on the ray from POI 144 through viewpoint 152.")). **Extrinsic Evidence**: Testimony

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				(Robertson Dep. 81:18-20, 82:1:16.) (Robertson Dep. 119:6-13, 119:16-21.)
motion requesting signal set (claim 52)	signals representative of data for viewpoint motion and/or point of interest motion in a three-dimensional workspace	**Specification:** "Signals from user input means can request motion of the viewpoint and motion of the POI. If the user can request viewpoint and POI motion separately and can request both types of motion simultaneously, the user input means is structured so that the use can request viewpoint motion and POI motion 'independently.' For example, the user can operate a mouse or other pointing device to request POI motion with one hand and can independently operate keys on a keyboard to request viewpoint motion with the other hand." (8:5-	A group of commands indicating a point of interest and requesting viewpoint motion relative to the indicated point of interest	**Specification:** Claim 52 (col. 26, line 38 to col. 27, line 4). "The step in box 32 [of FIG. 3] receives a signal set from a user input device indicating a POI on the surface and requesting viewpoint motion relative to the POI. In response, the step in box 34 presents an image that is perceptible as a view with the viewpoint moved relative to the POI. The image presented in box 34 includes a surface that is perceptible as a continuation of the surface presented in box 30. The step in box 36 receives another signal set, this time requesting both POI and viewpoint motion.

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		14). "The step in box 32 receives a signal set from a user input device indicating a POI on the surface and requesting viewpoint motion relative to the POI." (9:27-30) "The step in box 36 receives another signal set, this time requesting both POI and viewpoint motion. The step in box 38 responds by presenting an image that is perceptible as a view with the POI moved and with the viewpoint moved relative to the POI." (9:36-40) "The step in box 176 begins by obtaining a new ray from a user signal, which can be received in the steps in boxes 32 and 36 in FIG. 3 from a mouse or other		The step in box 38 responds by presenting an image that is perceptible as a view with the POI moved and with the viewpoint moved relative to the POI. The image presented in box 38 includes a surface that is perceptible as a continuation of the surface presented in box 30 and the moved POI is perceptible as a moved continuation of the previous POI, with the POI motion occurring on the surface. The steps in boxes 36 and 38 can be repeated until a satisfactory image is obtained." (col. 9, lines 27-46). **Extrinsic Evidence:** Testimony (Robertson Dep. 58:10-14, 58:17-63:9.) (Robertson Dep. 89:23-25,

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		user input device that can indicate a ray in a three dimensional workspace." (12:22-26) "The step in box 180 branches based on a signal selecting a type of viewpoint motion, which can be received in the steps in boxes 32 and 36 in FIG. 3 from keys on a keyboard or mouse. If the signal selects no viewpoint motion, the step in box 182 takes the previous position as the new position. If the signal selects viewpoint motion toward or away from the POI, the step in box 184 branches based on whether the requested motion is toward or away from the POI. If toward the POI, the step in box 186 takes as the new radial position t6he next position toward the POI on an		90:12-91:8.) (Robertson Dep. 92:17-93:1, 93:16-24.) (Robertson Dep. 94:11-96:25, 97:4-8, 97:12-98:1.)

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		asymptotic path. If away from the POI, the step in box 188 takes as the new radial position the next position away from the POI on the asymptotic path. If the signal selects lateral motion only, the step in box 190 takes the previous position as the new lateral position." (12:46-61). "This aspect is further based on the discovery of a technique that adjusts POI position without interrupting viewpoint motion. With this technique, the user can produce a desired viewpoint motion while independently adjusting POI position. The user can control viewpoint motion by using keys to select from a few simple choices, such a moving the viewpoint towards the POI, moving the viewpoint away		

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		from the POI, or keeping the viewpoint at the previous position; in a lateral mode, each type of radial viewpoint motion can be combined with lateral viewpoint motion, with an additional choice for moving the viewpoint laterally without moving it toward or away from the POI. The user can control POI position using a user input device such as a mouse to indicate changes in position. Independently requesting viewpoint motion and POI position adjustment is especially effective because a typical user can readily make both types of requests at the same time without confusion. For example, the user can use one hand to request viewpoint motion and the other hand to control POI position."		

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		(4:26-47). "The user can also provide a signal requesting viewpoint motion toward an indicated point in the region, referred to as the 'point of interest' or 'POI.'" (2:40-43)		
viewpoint motion (claims 1, 28, 42, 52 and 55)	A sequence of images that are perceptible as views of a three-dimensional workspace from a moving or displaced viewpoint.	**Specification:** "'Viewpoint motion' or 'viewpoint displacement' occurs when a sequence of images is presented that are perceptible as views of a three-dimensional workspace from a moving or displaced viewpoint. This perception may result from perception of objects in the workspace as continuations. Viewpoint motion is 'relative' to a point or other region of the image if the viewpoint is perceived as motion with respect to the point or other	A sequence of images that causes the viewpoint to appear to move from an initial position to other positions	**Specification:** "'Viewpoint motion' or 'viewpoint displacement' occurs when a sequence of images is presented that are perceptible as views of a three-dimensional workspace from a moving or displaced viewpoint. This perception may result from perception of objects in the workspace as continuations. Viewpoint motion is 'relative' to a point or other region of the image if the viewpoint is perceived as moving with respect to the point or other

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		region." (7:41-49). "The present invention provides techniques for operating a system to produce the perception of a moving viewpoint within a three-dimensional workspace. When the user indicates a point of interest on an object, the viewpoint can approach the point of interest asymptotically, with both radial and lateral motion. The orientation of the viewpoint can rotate to keep the point of interest in the field of view. The field of view can also be centered about the point of interest by rotating the viewpoint." (2:14-24). Figures 2A and 2B (see 8:53-54: "FIGS. 2A and 2B show images before and after viewpoint motion."; and 9:11-23)		region. A 'point of interest' or 'POI' is a point indicated by the user and relative to which the viewpoint can move." (col. 7, lines 41-51). Figures 4A and 4B (*see* col. 8, lines 56-59 ("FIGS. 4A and 4B are plane views showing radial viewpoint motion along an asymptotic path toward a point of interest on a surface, with FIG. 4B also showing a centering operation."); col. 9, lines 47-52 ("FIG. 4A illustrates a technique for moving a viewpoint radially toward an indicated POI on surface 50. Viewpoint 52 is the first in a sequence of viewpoint positions and is oriented with its direction of view along the v axis, an axis defined as the initial direction of view, with its origin at viewpoint 52.")).

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		Figures 4A and 4B (see 8:56-59: "FIGS. 4A and 4B are plane views showing radial viewpoint motion along an asymptotic path toward a point of interest on a surface, with FIG. 4B also showing a centering operation" and 9:47 – 10:42). "By presenting an appropriate sequence of images, surface 24 can be perceptible as a continuation of surface 10 but viewed from a different viewpoint in the three-dimensional workspace." (9:14-18). "One problem with simple POI approach is that it does not orient the viewpoint appropriately. This problem can be solved by adjusting the viewpoint,		Figure 5 (*see* col. 8, lines 59-63 ("FIG. 5 is a plane view showing lateral viewpoint motion along an asymptotic path that follows an arc and also showing viewpoint motion that includes both radial and lateral motion."); col. 10, lines 43-45 ("FIG. 5 shows how lateral viewpoint motion and viewpoint rotation can be combined with viewpoint approach to obtain satisfactory POI viewing.")). **Extrinsic Evidence**: Testimony (Robertson Dep. 84:25-85:9, 85:12:19.) (Robertson Dep. 154:16-155:1.) Other Extrinsic Evidence "However, this potential requires development of

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		either during POI approach or independent of approach. One way to adjust the viewpoint is to move the viewpoint laterally toward the surface normal at the POI. Another is to rotate the viewpoint to keep the POI at the same position in the field of view or to move it toward the center of the field of view. Lateral viewpoint motion has the incidental effect in many cases of moving the POI away from the center of the field of view. This problem can be solved with compensating viewpoint rotation. If the viewpoint is rotated through an angle equal to the angle subtended by lateral viewpoint motion, the POI will stay at the same position in the field of view." (3:14-29)		viewpoint movement techniques that support rapid and controlled movement through workspaces. Rapid movement through large distances avoids wasted work time; controlled movement near target objects allows the user to examine and interact with objects in the workspace. Current techniques for viewpoint movement typically use high velocities to cover distances rapidly, but high velocities are hard to control near objects. This paper describes a new technique for targeted viewpoint movement that solves this problem. The key idea is to have the user indicate a point of interest (target) on a 3D object and use the distance to this target to move the viewpoint logarithmically, by moving the same

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		"Lateral viewpoint motion can also be integrated with POI approach and retreat to provide motion toward the surface normal at the POI. During each animation cycle, the displacement from POI approach or retreat is used to obtain an intermediate viewpoint; a vector normal to the POI is obtained and a lateral position point on the vector normal is found at a distance equal to the distance from the POI to the intermediate viewpoint; and the ending viewpoint is then found along a line from the intermediate viewpoint to the lateral position point. The line can be an arc or a chord. The displacement from the intermediate viewpoint to the ending viewpoint can be a proportion of the line, found using a lateral		relative percentage of distance to the target on every animation cycle. The result is rapid motion over distances that slows as the viewpoint approaches the target object." (Rapid, p. 171, Abstract). "An important requirement for such systems is a technique that allows the user to move the viewpoint (1) rapidly through large distances, (2) with such control that the viewpoint can approach very close to a target without collision. We call this the problem of *rapid and controlled, targeted 3D viewpoint movement.*" (Rapid, p. 171, section 1, columns 1-2). "This paper describes a new, more effective technique for targeted 3D viewpoint movement. The key idea is to have the user

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		proportionality constant. To integrate this lateral motion with POI approach, the lateral proportionality constant should be sufficiently larger than the approach proportionality constant that the viewpoint comes close to the normal before reaching an appropriate distance for viewing the POI." (3:64 - 4:15).		select a 3D point of interest (the target) on the surface of an object. On each animation cycle, the user's viewpoint is moved the same relative percentage of the distance to the target, resulting in an approach that is rapid for large distances, but logarithmically slower as the target becomes closer." (Rapid, p. 171, section 1, col. 2). "3D viewpoint movement involves at least six degrees of freedom: three dimensions for position and three dimensions for rotation. The actual number of parameters depends on the movement metaphor, which typically involves either the direct positioning of the viewpoint in the workspace or the flying of the

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				viewpoint through the workspace." (Rapid, p. 171, section 2, col. 2). "We can distinguish at least four types of viewpoint movement for interactive 3D workspaces: *General movement.* Exploratory movement, such as walking through a simulation of an architectural design. *Targeted movement.* Movement with respect to a specific target, such as moving in to examine a detail of an engineering model. *Specified coordinate movement.* Movement to a precise position and orientation, such as to a specific viewing position relative to a molecule or a CAD solid model. *Specified trajectory movement.* Movement along a position and orientation trajectory,

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				such as a cinematographic camera movement." (Rapid, p. 172, section 2, col. 1).
point of interest motion (claim 52)	A sequence of images that are perceptible as views of a three-dimensional workspace including a moving or displaced point of interest	**Specification:** "As viewpoint motion progresses, the user may wish to adjust the POI position, especially during a POI approach in which the POI and the surrounding area becomes progressively larger on the display. .... This aspect is further based on the discovery of a technique that adjusts POI position without interrupting viewpoint motion. With this technique, the user can produce a desired viewpoint motion while independently adjusting POI position. The user can control viewpoint motion by using keys to select from a few simple choices, such as moving the	A change in location of the point of interest as indicated by a user	**Specification**: "The step in box 32 [of FIG. 3] receives a signal set from a user input device indicating a POI on the surface and requesting viewpoint motion relative to the POI. In response, the step in box 34 presents an image that is perceptible as a view with the viewpoint moved relative to the POI. The image presented in box 34 includes a surface that is perceptible as a continuation of the surface presented in box 30. The step in box 36 receives another signal set, this time requesting both POI and viewpoint motion. The step in box 38 responds by presenting an image that is perceptible as a view with

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		viewpoint toward the POI, moving the viewpoint away from the POI, or keeping the viewpoint at the previous position; in a lateral mode, each type of radial viewpoint motion can be combined with lateral viewpoint motion, with an additional choice for moving the viewpoint laterally without moving it toward or away from the POI. The user can control POI position using a user input device such as a mouse to indicate changes in position. Independently requesting viewpoint motion and POI position adjustments is especially effective because a typical user can readily make both types of requests at the same time without confusion." (4:18-45). Figure 7 (see 8:66 – 9:2:		the POI moved and with the viewpoint moved relative to the POI. The image presented in box 38 includes a surface that is perceptible as a continuation of the surface presented in box 30 and the moved POI is perceptible as a moved continuation of the previous POI, with the POI motion occurring on the surface. The steps in boxes 36 and 38 can be repeated until a satisfactory image is obtained." (col. 9, lines 27-46). Figure 7 (*see* col. 8, lines 66-69 ("FIG. 7 is a plane view showing radial viewpoint motion with point of interest motion on a surface."); col. 12, lines 9-19 ("FIG. 7 illustrates viewpoint motion together with point of interest motion. Surface 140 is

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		"FIG. 7 is a plane view showing radial viewpoint motion with point of interest motion on a surface."). "FIG. 7 illustrates viewpoint motion together with point of interest motion. Surface 140 is perceptible in a three-dimensional workspace, and includes POI 142 and POI 144. From initial viewpoint 150, radial motion is requested toward POI 142, so that an image is presented from viewpoint 152 on the ray from POI 142 through viewpoint 150. Then, while the request for radial motion toward the POI continues, a request to move to POI 144 is also received, so that an image is presented from viewpoint 154 on the ray from POI 144 through viewpoint		perceptible in a three-dimensional workspace, and includes POI 142 and POI 144. From initial viewpoint 150, radial motion is requested toward POI 142, so that an image is presented from viewpoint 152 on the ray from POI 142 through viewpoint 150. Then, while the request for radial motion toward the POI continues, a request to move to POI 144 is also received, so that an image is presented from viewpoint 154 on the ray from POI 144 through viewpoint 152.")). **Extrinsic Evidence**: Testimony (Robertson Dep. 58:10-14, 58:17-63:9.) (Robertson Dep. 154:16-155:1.) Other Extrinsic Evidence

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		152." (12:9-19) "The step in box 36 receives another signal set, this time requesting both POI and viewpoint motion. The step in box 38 responds by presenting an image that is perceptible as a view with the POI moved and with the viewpoint moved relative to the POI. The image presented in box 38 includes a surface that is perceptible as a continuation of the surface presented in box 30 and the moved POI is perceptible as a moved continuation of the previous POI, with the POI motion occurring on the surface. The steps in box 36 and 38 can be repeated until a satisfactory image is obtained." (9:36-46).		"Basic POI movement requires the user first to indicate a POI on the surface of a target object and then to initiate motion toward (or away from) that POI. The user indicates a POI to the system by using the mouse cursor to select a target object in the 3D workspace. When the user pushes a mouse button, the viewing transformation is inverted and a ray is cast into the 3D workspace. The closest object pierced by this ray determines the POI and a circle is drawn on the surface of the object as feedback to the user. Since the feedback might indicate that the POI is not placed at the desired location, the user can interactively adjust the mouse cursor while the mouse button is pushed and adjust the POI along the surface of the

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				object. The interaction is very natural. Just as the human eye rotates through a small visual angle to adjust to a point of interest, the mouse cursor can move through a small distance. While these small adjustments are being made, the POI changes position rapidly and automatically in the 3D workspace over distances and through multiple degrees of freedom. Furthermore, objects near the viewpoint fill larger visual angles, which allows the user to make controlled adjustments as the viewpoint approaches an object. Since all motions are relative to the POI, the user need not look at menus, inset orthographic displays, or virtual sliders, which would lead to inefficient interface

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				interactions." (Rapid, p. 173, section 4, cols. 1-2).
radial motion (claim 55)	Motion or displacement along one or more rays	**Specification:** "'Radial motion' or 'radial displacement' is perceived as motion or displacement along one or more rays." (7:55-57) Figures 4A and 4B (8:56-59 and 9:47 – 10:42). Figure 6 (11:13-15: "FIG. 6 illustrates another example of viewpoint motion that includes radial motion, lateral motion, and viewpoint centering."). Figure 7 (12:9-15: "FIG. 7 illustrates viewpoint motion together with point of interest motion. Surface 140 is perceptible in a three-dimensional workspace, and includes POI 142 and POI 144. From initial viewpoint 150,	Perceived movement along a ray	**Specification**: "'Radial motion' or 'radial displacement' is perceived as motion or displacement along one or more rays. A ray extends from a 'radial source.'" (col. 7, lines 55-57). Figures 4A and 4B (*see* col. 8, lines 56-59 ("FIGS. 4A and 4B are plane views showing radial viewpoint motion along an asymptotic path toward a point of interest on a surface, with FIG. 4B also showing a centering operation."); col. 9, lines 47-48 ("FIG. 4A illustrates a technique for moving a viewpoint radially toward an indicated POI on surface 50.")). Figure 7 (*see* col. 8, lines 66-69 ("FIG. 7 is a plane

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Term	**Plaintiffs' Proposed Construction**	**Plaintiffs' Support**	**Defendant's Proposed Construction**	**Defendant's Support**
		radial motion is requested toward POI 142, so that an image is presented from viewpoint 152 on the ray from POI 142 through viewpoint 150.").		view showing radial viewpoint motion with point of interest motion on a surface."); col. 12, lines 9-19 ("FIG. 7 illustrates viewpoint motion together with point of interest motion. Surface 140 is perceptible in a three-dimensional workspace, and includes POI 142 and POI 144. From initial viewpoint 150, radial motion is requested toward POI 142, so that an image is presented from viewpoint 152 on the ray from POI 142 through viewpoint 150. Then, while the request for radial motion toward the POI continues, a request to move to POI 144 is also received, so that an image is presented from viewpoint 154 on the ray from POI 144 through viewpoint 152.")).
Ray (claim 55)	Extending from a	**Specification:**	A straight line	**Specification:**

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Term	**Plaintiffs' Proposed Construction**	**Plaintiffs' Support**	**Defendant's Proposed Construction**	**Defendant's Support**
	radial source.	"A ray extends from a 'radial source.'" (7:57). "In FIG 4A, the ray along which radial motion occurs extends from the viewpoint through a POI on surface 50." (9:52-54). Figure 4A **Extrinsic Evidence:** "ray" is defined as "a straight line extending from a point." (American Heritage Dictionary, 1982 at p. 1029).	extending from a radial source or point in a three-dimensional space	"A ray extends from a 'radial source.'" (col. 7, line 57). "The viewpoint can move or be displaced radially toward or away from a radial source in a three-dimensional space, and the radial source can be a POI." (col. 7, lines 58-60). Figure 4A (*see* col. 9, lines 52-54 ("In FIG. 4A, the ray along which radial motion occurs extends from the viewpoint through a POI on surface 50.")). Figure 7 (*see* col. 12, lines 9-19 ("FIG. 7 illustrates viewpoint motion together with point of interest motion. Surface 140 is perceptible in a three-dimensional workspace, and includes POI 142 and POI 144. From initial viewpoint

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Term	**Plaintiffs' Proposed Construction**	**Plaintiffs' Support**	**Defendant's Proposed Construction**	**Defendant's Support**
				150, radial motion is requested toward POI 142, so that an image is presented from viewpoint 152 on the ray from POI 142 through viewpoint 150. Then, while the request for radial motion toward the POI continues, a request to move to POI 144 is also received, so that an image is presented from viewpoint 154 on the ray from POI 144 through viewpoint 152.")). **Extrinsic Evidence:** Testimony (Robertson Dep. 154:16-155:1.) Other Extrinsic Evidence "When the user pushes a mouse button, the viewing transformation is inverted and a ray is cast into the 3D workspace. The closest object pierced by this ray

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Term	**Plaintiffs' Proposed Construction**	**Plaintiffs' Support**	**Defendant's Proposed Construction**	**Defendant's Support**
				determines the POI and a circle is drawn on the surface of the object as feedback to the user." (Rapid, p. 173, section 4, col. 1).