

Chapter 21

ONE CHART, SIX SIZES

In the five parts of “Bottom-Up Shaping,” we all, traditional and mirror-image knitters, learned how to chart, both on paper and in the computer, the shaping instructions for the underarm, shoulder, and front neckline of “The Basic Vest” in the size small.

Now that we know how to chart a garment’s written-out instructions, we’ll use that knowledge as we learn how to read garment charts. This task is slightly more difficult than reading the charts we constructed in parts one and two because garment charts quite often show more than one size.

If we needed to construct charts for all six sizes of “The Basic Vest,” we’d probably create each one on its own piece of grid paper or in separate computer files, just to keep things as easy as possible. But most knitting books won’t show separate charts for each size, simply because doing so would take up too much space. Instead, they’ll show all the sizes in as few charts as possible, depending on how much the sizes overlap. In some designs, the sizes may be different enough to put all of them in just one chart.

In another complicating factor, most garment designs will also use the same chart for the front and the back, even though the two pieces so often have different neckline shaping. We must therefore ignore one piece’s neckline shaping while making the other piece.

In this chapter, we’ll see how to handle all these issues as we learn to read a single chart showing multiple sizes.

Some of the Same Preliminaries Apply

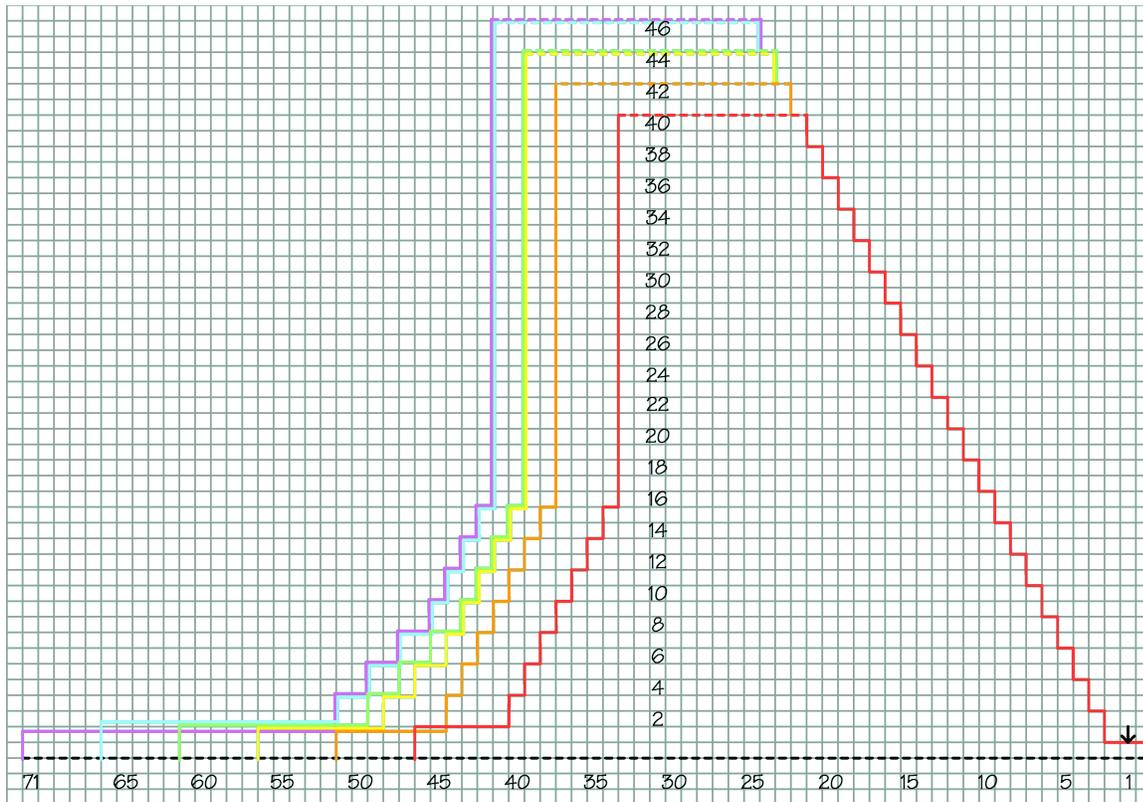
At the beginning of both the paper and computer versions of “Bottom-Up Shaping,” there was some general information. The sections on the first charting rule, decrease placement, and bind-offs all apply in this chapter as well.

In this chapter, we’ll see that we have to do decreases at the end of some rows. The same interpretation on decrease placement applies, so boundary lines and text that say or indicate “at the end of the row” or in specific stitches again mean “at our preferred location to do a decrease.”

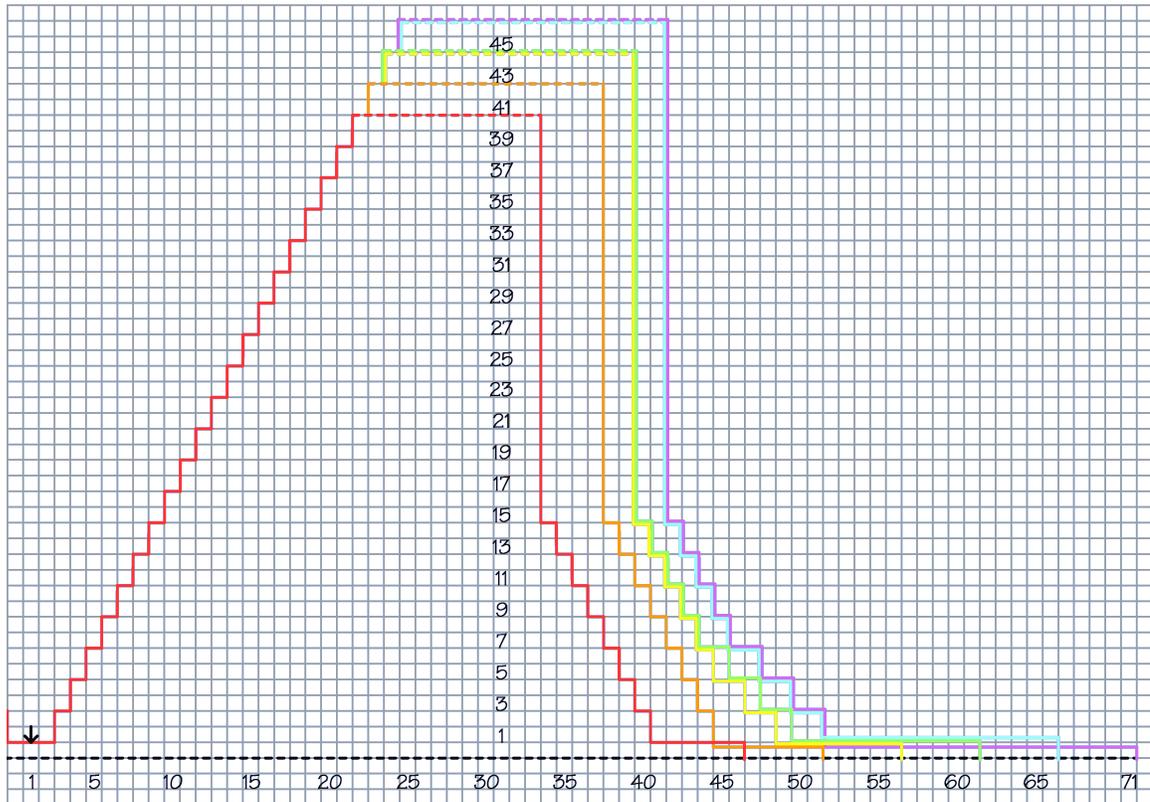
Notes on This Chapter’s Charts

I’ve drawn these multi-size charts somewhat differently compared to charts in other books.

- ☉ The underarm and front neckline shaping chart is shown separately from the shoulder shaping chart, because the shoulder shaping overlaps so much. Doing so also lets us concentrate much more easily on one shaping area at a time.



- Unlike the stitch labels in the charts in all five parts of “Bottom-Up Shaping,” the labels here start with one in the center symmetry stitch and increase toward both underarms. That allows us to use one set of stitch labels for all six sizes.
- The row numbers are inside the charts to reduce the overall chart width, which in turn allows the important parts of the charts to be a bit bigger. We would simply work the stitches under the row numbers in the usual way, knitting them or purling them depending on whether we’re working a public- or private-side row (since the vest’s main fabric is, at this point, still one-color stockinette).
- The dashed horizontal line at the top of each size in the underarm and front neckline chart indicates explicitly the point at which we start working evenly to the desired underarm depth on the stitches remaining after we complete the front neckline shaping. For the back, we start working evenly as soon as we finish the underarm shaping, which in all sizes is on row sixteen.
- The only special symbol is the one at the very center of the bottom of the V-neck, the down arrow indicating that when we’re working the vest front, the dead-center



stitch is put to a holder on row one of the underarm shaping. We have to rely on the boundary lines alone to show us where to bind off and decrease.

Underarm and Front Neckline Chart

This chart is shown on facing pages so it’s as large as possible and so we can see both parts at the same time. The boundary for the size small is shown with the red solid line, medium with orange, large with yellow, XL with green, XXL with blue, and XXXL with purple.

In this design, the underarm shaping overlaps a bit in the larger sizes, because the cross-back stitch count between the vertical edges of the right and left armholes (stitch count x in the appendix “Garment Design Details”) does not increase as much as the chest stitch count does. Even so, it’s still easy to see the borders of each size.

The red solid lines forming the V shape represent the two edges of the front neckline. We’ll ignore those for the time being and read the chart as we would when making the back of the vest.

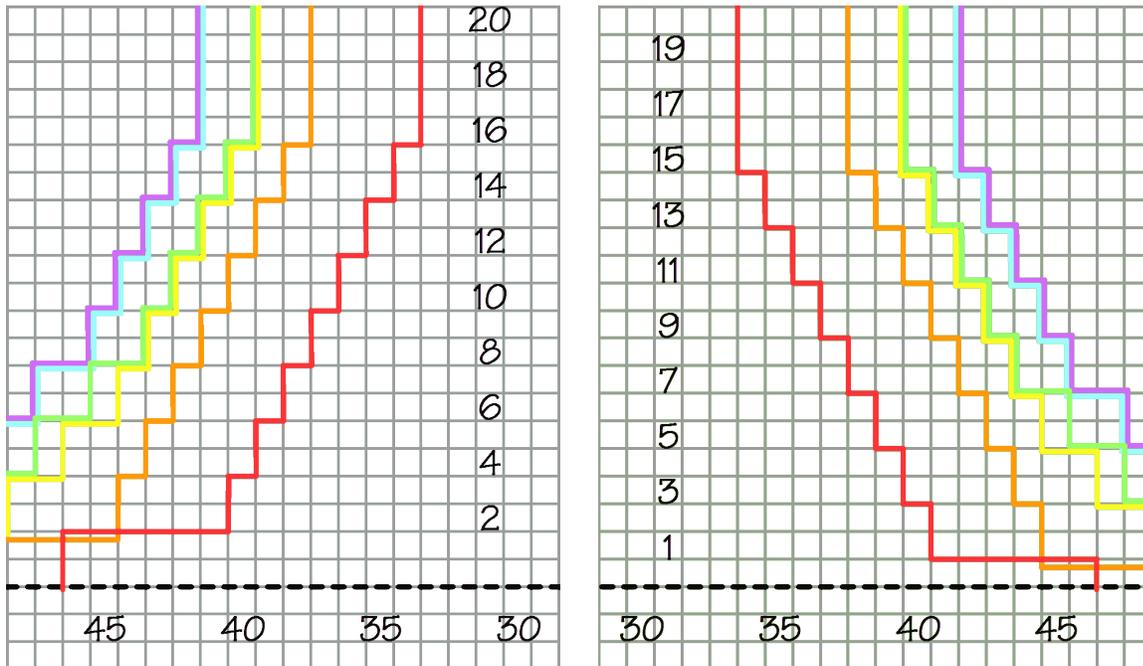
Working the Vest Back

According to “The Basic Vest,” when we’ve worked from the bottom edge to the desired length to the underarm, we complete a private-side row and turn. The first shaping row, done on the public side, is called “row one” for all six sizes.

While we’re working the vest back, we ignore the boundary lines and the arrow symbol that indicate the front neck’s shaping (unless we want a V-neck on the back of the vest). We simply pretend like the arrow symbol and the two red lines in the center aren’t there.

The Size Small

Using close-ups of the underarm shaping, let’s look at the size small in detail. How do we interpret the red boundary lines?



Remember that in all sizes, we work stitches twenty-eight through twenty-eight in the gap between the partial charts.

The Underarm Bind-Offs

There are no marks inside the grid cells for this one-color stockinette vest, so we know that each cell represents a public-side knit. Since the size small is shown with the red boundary, we look for where it starts, somewhere near the beginning of row one. We find between

stitches forty-seven and forty-six on the unnumbered “foundation” row the vertical segment separating the project stitches from the rest of the grid. As we follow it, it turns into a horizontal line below stitches forty-six through forty-one of row one. Since the horizontal segment is more than one stitch wide, that means that we bind off those six stitches.

As we work toward the end of row one and approach the other stitch forty-six, we see that there’s a red vertical segment past it. The chart’s foundation row has a vertical segment between stitches forty-six and forty-seven, representing the edge of the fabric all the way back down to the bottom. The vertical segment showing the end of row one is directly above the vertical segment in the row below it, so we do no shaping at the end of row one. We work up to and through the last stitch before the vertical segment. The stitch forty-six at the end of the row is the ninety-first that we had on our needles when we began row one.

At the beginning of row two, the first six stitches have a horizontal segment below them, so we bind them off. We work toward the end of row two, where we see a vertical segment past stitch forty. That segment is directly above the segment that separates from the rest of the grid the first live stitch we had after completing row one’s underarm bind-offs. That means we work the end of row two evenly, doing no shaping of any kind. Stitch forty at the end of row two is also the natural end of the row because we’ll run out of stitches.

The Underarm Curves

At the beginning of row three, the vertical segment between stitches forty and thirty-nine is one grid cell closer to the center of the chart than the vertical segment below it at the end of row two, so we do a single decrease to move the beginning of row three one stitch closer to the center. We work toward the end of row three, where we see a vertical segment beyond stitch forty. That segment is directly above the vertical segment at the beginning of row two, which means we do no shaping at the end of row three. The vertical segment also tells us that stitch forty is the last stitch we work on the row.

At the beginning of row four, we again see between stitches forty and thirty-nine a vertical segment that’s one stitch closer to the middle of the row than the vertical segment at the end of row three. We must do a single decrease at the beginning of row four to make it shorter there. As we work toward the end of the row, we see past stitch thirty-nine a vertical segment that is directly above the vertical segment marking the beginning of row three. That means we work no shaping at the end of the row, and stitch thirty-nine is the last stitch of row four.

Since rows five, seven, nine, eleven, thirteen, and fifteen are all one stitch shorter than the private-side rows below them, as shown by the relative positions of the vertical segments separating the rows’ stitches from the rest of the grid, we know we decrease one stitch at the beginning of those six rows for the underarm curve in the right portion of the chart.

In the underarm curve in the left portion of the chart, we see on rows six, eight, ten,

twelve, fourteen, and sixteen the same vertical segments that are one cell closer to the center than the segments at the end of the public-side rows below them, indicating we decrease at the beginning of each of those six rows.¹

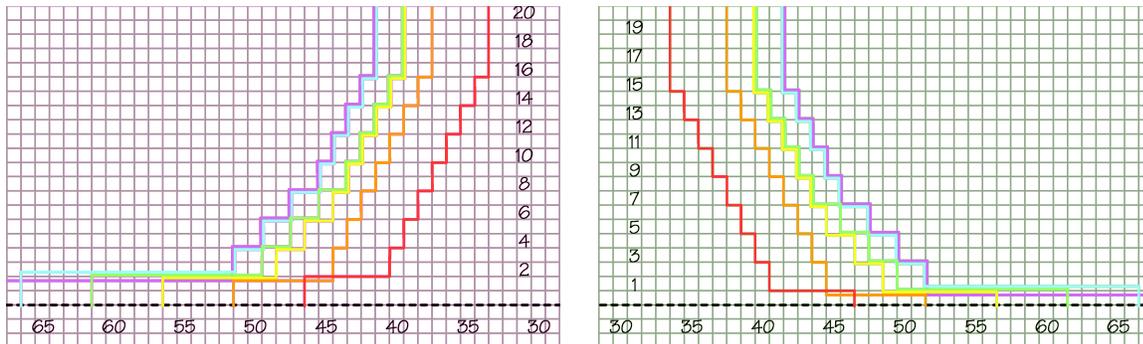
The Armhole Edges

On row seventeen, the vertical segment between stitches thirty-four and thirty-three in both halves of the chart is on top of a vertical segment between the same two pairs of stitches in row sixteen. That means we work both ends of row seventeen evenly, neither binding off nor decreasing. When we look back at the full chart, we see that those vertical segments are on top of one another all the way up to row forty, showing that we work both armhole edges evenly after we complete the underarm shaping on rows fifteen and sixteen.

Above row forty on the full chart, there is a red dashed horizontal line. The dashed line indicates that we continue to work evenly on the stitches that remain until we get to the proper armhole height/depth. At that point, we switch to the shoulder chart.

The Size XXL

For the XXL, we use the blue lines on the chart. These partial charts have to show more stitches, so the grid cells must be smaller than in the first pair of partial charts.



The Underarm Bind-Offs

As we look near the beginning of row one to find where the blue solid line starts, we see that the vertical segment separating the first stitch of the unnumbered foundation row from the rest of the grid is between stitches sixty-seven and sixty-six. As we follow it, we see below stitches sixty-six through fifty-two on row one a very long horizontal boundary segment, so we bind off all fifteen of those stitches. As we work toward the end of the row, we see a blue vertical segment after stitch sixty-six. Directly below it is the vertical segment showing

¹ I suppose that at the beginning of a row that's one stitch shorter than the row below it, we could bind off one stitch instead of doing a decrease.

the beginning of the unnumbered foundation row, so we work the end of row one evenly. That's also where we run out of stitches on our source needle.

At the beginning of row two, there's a long blue horizontal segment below the same fifteen stitches as on row one, so we bind them off. As we approach the end of row two, we see after stitch fifty-one a blue vertical segment exactly on top of the vertical segment at the beginning of row one. Since the last stitch of row two is exactly above the first live stitch after the bind-offs on row one, we do no shaping at the end of row two. We work up to and through that last stitch on our source needle.

The Underarm Curves

On rows three, five, and seven, there are horizontal segments below their first two stitches, so we bind them off (or work a double decrease) to start the underarm curve on that half of the chart. The last stitch we work on those rows is the one just before the vertical segment.

There are corresponding horizontal segments below the first two stitches at the beginning of rows four, six, and eight, so we bind off the first two stitches of each of those rows to begin the underarm curve on that side, then work to the stitch just before the vertical segment at the end of each row.

Since the vertical segments at the end of rows three through eight are all directly above the vertical segments at the beginning of the rows below them, we do no shaping at the ends of those six rows.

Rows nine, eleven, thirteen, and fifteen are all one stitch shorter than the private-side rows below them, as indicated by their vertical segments being one grid cell closer to the center, so we do an ordinary decrease at the beginning of those four rows to complete the underarm shaping in that half of the chart.

There are similar vertical segments at the beginning of rows ten, twelve, fourteen, and sixteen, which indicate the ordinary decrease that we must make at the beginning of each of those rows to complete the underarm shaping in the other half of the chart.

Note that the vertical boundary segments at the end of rows nine through sixteen are directly above the vertical segments at the beginning of the rows below them, indicating we do no shaping at the end of those eight rows.

The XXL boundaries show that after we bind off fifteen stitches at both underarms, we bind off two stitches at the beginning of the next six rows, then decrease one stitch at the beginning of the next eight rows.

The Armhole Edges

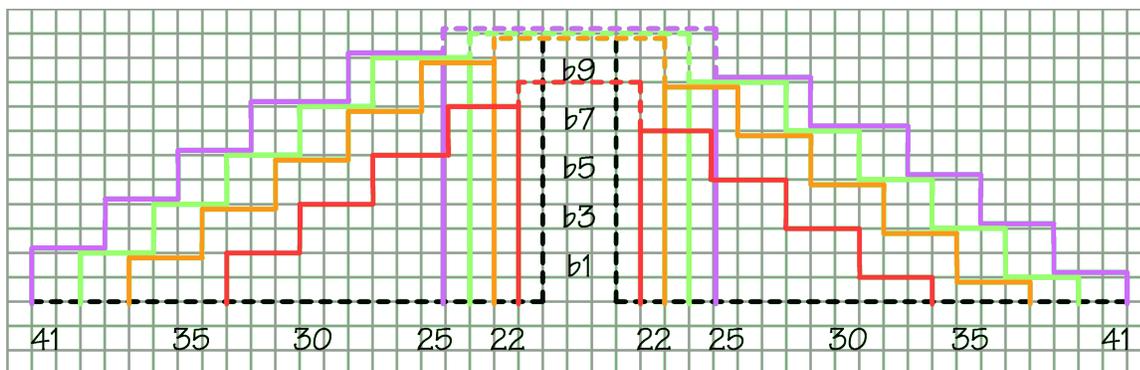
We finish all the underarm shaping on rows fifteen and sixteen, and when we look back at the full chart, we see vertical segments on top of one another between stitches forty-two and

forty-one in both halves of the chart, indicating that we work evenly at both armhole edges on all those rows. Above row forty-six, we see the blue dashed horizontal line, so we continue to work evenly until we reach the necessary armhole depth, then we switch to the shoulder chart.

The Shoulder Chart

This chart looks more difficult because the boundary lines now cross over and under one another instead of just overlapping like they did on the underarm and front neckline chart. But if we go slowly and look at only one boundary line segment at a time, we can understand what the chart is showing us.

Only four sizes are shown explicitly in this chart, with the size small shown with red, medium with orange, XL with green, and XXXL with purple. The large and XL are the same, so the yellow boundary has been omitted to minimize confusion, and the XXL is identical to the XXXL, so the blue boundary has also been omitted. The stitch labels correspond to the stitches remaining for each size after the armhole shaping is complete.



Just as the underarm and front neckline chart shows the shaping of both the back and front of the vest, this chart also shows shoulder shaping for the back and front of the vest. If we compare each half with the corresponding part of the underarm chart, we can see that the solid vertical lines around stitches twenty-two through twenty-four are in the exact same places as the final vertical lines at the top of the V-neck shaping. That means we use the innermost solid vertical lines only when we're working the front, so we'll ignore them here while we're working the back.

As with the underarm and front neckline chart, all six sizes start their shoulder shaping on the same chart row, with that row labeled as "B1."

In this chart, all the stitches below or inside each boundary are the shoulder stitches for that size.

The Size Small

We complete the required armhole depth with a private-side row, then turn, ready to start the first shoulder shaping row. We look for where the size small's red solid boundary starts near the beginning of the first public-side row, row B1. We find a vertical line between stitches thirty-four and thirty-three, so stitch thirty-three is where we begin reading the chart. It's also the first one on our needles. (If we look back at the underarm and front neckline chart, we see the tall vertical lines showing the edges of the armholes between stitches thirty-four and thirty-three.)

On shoulder shaping row B1, there's a red horizontal segment below stitches thirty-three through thirty-one. Since the segment is more than one stitch wide, that means we have to bind off those stitches, then continue along the row, including the forty-one stitches not shown explicitly in the gap where the row numbers are.

When we've worked stitch thirty-three at the end of the row, the vertical segment there tells us to turn, which is a good thing, since that's where we run out of stitches on our source needle. That vertical boundary is directly above the one in the unnumbered "foundation" row, telling us to work the end of row B1 evenly, without any shaping.

On row B2, the horizontal segment below stitches thirty-three through thirty-one indicates they are likewise bound off at the beginning of the row. As we work toward the end of the row, the vertical segment after stitch thirty shows us that it's the last stitch on our source needle. Since that vertical segment is directly above the segment at the beginning of the previous row, we work the end of row B2 evenly, doing no shaping of any kind.

Stitches thirty through twenty-eight, twenty-seven through twenty-five, and twenty-four through twenty-two all have below them a horizontal segment more than one stitch wide in both halves of the chart, indicating they are all bound off at the beginning of their rows.

The Back Neck

The red dashed line above row B8 shows the back neck boundary. It starts with the first live stitch after we finish the bind-offs at the beginning of the row, and since the vertical line at the end of the row is directly on top of the vertical line in the previous row, we end row B8 without doing any more shaping. The stitches that remain for the back neck are between the dashed vertical lines and run from stitch twenty-one through stitch twenty-one inclusive, which is forty-one stitches.

The Size XXL

After we complete the underarm shaping on rows fifteen and sixteen of the underarm and front neckline chart, the solid blue vertical lines on the outer edge of stitch forty-one at both armholes tell us to work evenly on those eighty-one stitches until the armhole is deep

enough. We finish the unnumbered private-side “foundation” row and turn, ready to start the shoulder shaping with the public-side row labeled “B1” in the shoulder chart.

The XXL and XXXL sizes, both indicated by the purple solid line, have the same number of total shoulder stitches as well as identical bind-offs. As we did with the size small, we completely ignore the purple vertical segments between stitches twenty-five and twenty-four in both halves of the chart while we’re working the back, since they show the inner edges of the front neckline shaping (which we can verify with the underarm and front neckline chart).

We bind off three stitches at the beginning of rows B1, B3, and B5, as indicated by the horizontal segments below stitches forty-one through thirty-nine, thirty-eight through thirty-six, and thirty-five through thirty-three at the beginning of those public-side rows.

There are corresponding horizontal segments below the same groups of three stitches on rows B2, B4, and B6, so we also bind off three stitches at the beginning of those private-side rows.

The vertical segments at the end of those six rows tell us that we work evenly there, doing no shaping, since they are directly on top of the vertical segments at the beginning of the six rows below them.

On rows B7 and B9, the horizontal segments are four stitches wide, from stitches thirty-two through twenty-nine and stitches twenty-eight through twenty-five. Those four-stitch-wide horizontal segments indicate that we bind off the four stitches above them at the beginning of those two rows. There are also horizontal segments four stitches wide at the beginning of rows B8 and B10, so we bind off four stitches at the beginning of each of those two rows as well. The end of each of the final four rows is indicated by a vertical line directly above the vertical line at the beginning of the preceding row, so we work the end of those four rows evenly.

The Back Neck

On row B10, the purple dashed vertical lines on the outer edge of stitch twenty-four in both halves of the chart combine with the purple dashed horizontal line connecting them to show the forty-seven stitches remaining at the back neck.

Working the Vest Front

How do we work the front from these charts? If we look back at the underarm and front neckline chart, we see that we have four red solid lines representing the boundaries of the size small. We already know how to interpret the underarm bind-off and curve shaping (the outermost boundary lines).

How do we interpret the innermost pair of boundaries, the ones that form the V-neck?

Do we use the same techniques we used for the underarm shaping while we work the neckline decreases?

Both at Once or One at a Time?

The left and right front shoulders have to be worked independently in one of two ways. We can either

- ☉ work both at the same time with two balls of yarn
- ☉ complete one front shoulder, then reattach the yarn to work the other

If we choose the second option, we ought to put the other front shoulder's stitches on a holder to minimize strain. The rest of this section assumes we're using the second option, since it's easier to describe what we need to do.

A Special Case

Because the front neckline boundary on rows one through forty is shown only by the size small's red solid lines, we can assume the other five sizes use the same boundaries for those rows. (Trying to put all six sizes' boundary lines in the exact same place is impractical.)

Since the larger sizes work a few more rows than the size small to complete their front neck shaping, there are short vertical lines two rows tall on rows forty-one through forty-six in those sizes' boundary colors to show us where we finish their neck decreases.

Interpreting the V-Neck Shaping

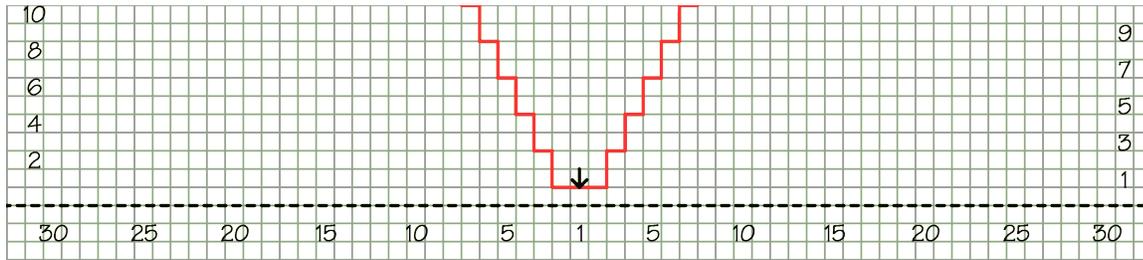
Let's look at the bottom center of the underarm and front neckline chart so we can concentrate on the initial neck decreases. (It's on the next page for convenience.)

The Left Front Shoulder

When we were coming to the end of a public-side row during the underarm shaping, we stopped with the last stitch before a vertical boundary segment. We'll do the exact same thing here.

We work whatever underarm shaping is shown at the beginning of row one. As we're working toward the left neckline edge, we see a vertical segment after stitch three. We also see a special symbol in stitch one. For this particular project, we read in the instructions that we put the front's dead-center stitch on a holder on the same row that we start the underarm shaping. The down arrow symbol in stitch one of the front's row one is that stitch, which will become the center of the neck ribbing.

Since the left neckline has a vertical segment between stitches two and three, then what



are we supposed to do with stitch two? Do we work it? No, we are supposed to make that stitch disappear so that row one is shorter by one stitch than that part of the unnumbered private-side “foundation” row below it. So when we have worked stitch four, we work a decrease on stitches three and two. That decrease shortens the left front shoulder’s row one by one stitch at the neck edge. We’re at the end of the row, so we turn, leaving the right front shoulder’s stitches unworked (since we’re working one shoulder at a time).

The beginning of row two has a vertical segment directly above the segment at the end of row one (between stitches two and three), so we simply work the beginning of row two evenly, neither decreasing nor binding off. We work back to the left armhole and do whatever shaping the complete chart shows at the end of row two.

At the beginning of row three, we do whatever shaping is indicated by the underarm portion of the chart. As we come to the end of row three at the left front neckline, we again see from the vertical segment after stitch four that row three should end one stitch farther from the center than where row two began. We work to the final two stitches, decrease, and turn.

The beginning of row four is exactly above the end of row three, as indicated by row four’s vertical segment between stitches three and four being above the vertical segment in row three. That means we simply work evenly the beginning of row four at the left neckline, neither binding off nor decreasing. When we get to the end of row four at the left underarm, we do whatever shaping we’re supposed to do according to that part of the chart.

We continue in this way, first working whatever shaping is shown at the left armhole on the full chart, then always decreasing at the left neckline edge, where each public-side row is one stitch shorter than the private-side row below it.

If we look back at the full chart, we see that the last decrease we do on the neck for the size small is on row thirty-nine. Above row forty we see the red dashed horizontal line, so we work the twelve stitches that remain on the left front shoulder until we’ve worked the same number of rows above the underarm bind-offs as we did on the back before we started its shoulder shaping. When we’ve completed the final private-side row at the top of the armhole, we turn to the public side and switch to the shoulder chart.

On the shoulder chart, we see that the red solid boundary segments on row B1 enclose

stitches thirty-three through twenty-two, which exactly matches the stitches remaining after we finish the front neckline shaping on the left shoulder. We do the shaping at the shoulder's outer edge the exact same way we did it on the vest back. But because the boundary is vertical beside stitch twenty-two, we work evenly the neck edge of each shoulder row.

The Right Front Shoulder

To complete the front, we need to reattach the yarn on row one of the right front neck. But which end of this part of row one do we start at? Do we start with stitch three near the center front, or do we start with stitch thirty-three at the right armhole?

If we were working all the way across row one from one end to the other, from stitch forty-six through stitch forty-six (as we did when working the back), once we passed the center of the row, we would work stitch three long before we worked stitch thirty-three. We do the same thing here. We must reattach the yarn starting at stitch three, then work from there out to the right armhole edge.

Now, just as row one on the left front was one stitch shorter at the neck edge as indicated by the vertical segments between stitches three and two, we have the same vertical segment in the same place on the right neck edge as well. Once the dead-center stitch is put on a holder, stitch two is supposed to disappear. The only way to make it disappear is to decrease it by working it with stitch three at the beginning of the row, right where we're reattaching the yarn. We then work to the end of row one and do whatever shaping the full chart shows there.

After we turn, we do whatever shaping is required at the right armhole at the beginning of row two. As we approach the right neck edge, we see that there's a vertical segment in row two directly above the vertical segment in the same place on row one. That means we work evenly up to and through that stitch, stitch three.

Since row three's first stitch is one stitch farther from the center of the vest than row two's last stitch, as indicated by the relative positions of the vertical segments in rows two and three, we do a decrease at the beginning of row three. We work toward the right armhole, then do whatever shaping the armhole portion of the full chart shows us.

At the beginning of row four, we first do whatever right underarm shaping the full chart shows, then work toward the neck edge. Row four ends with the first stitch of row three, since the vertical boundary segments at the right neck are in the same place on both rows.

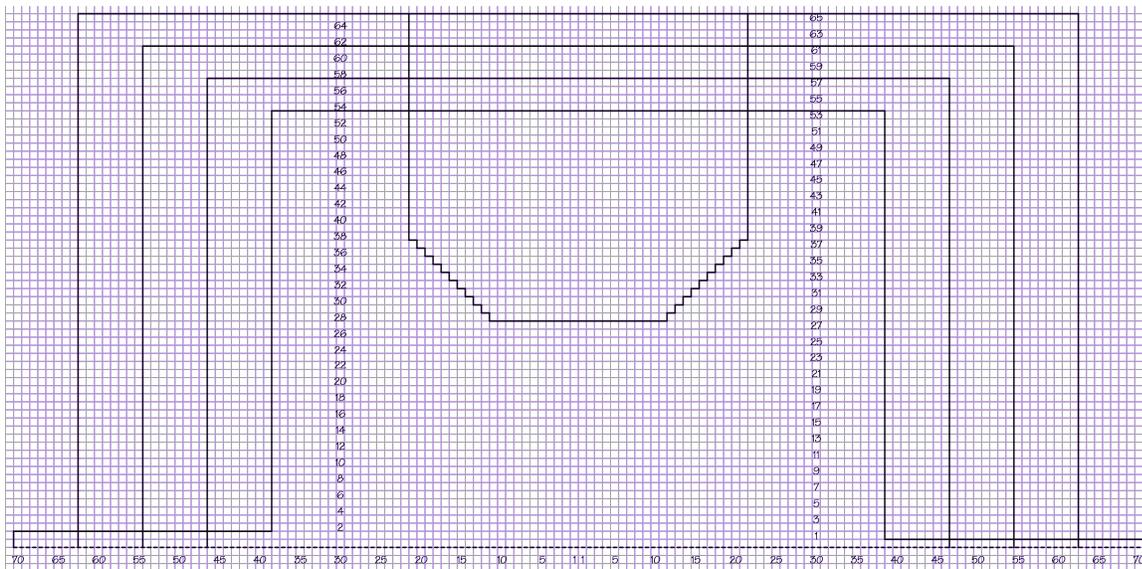
We continue on in this manner, decreasing one stitch at the neck edge of the public-side rows, since the relative positions of the vertical segments show that each public-side row starts one stitch farther from the center of the chart than where the private-side row below it ended. We have to be sure, though, that we continue to do all the shaping at the right armhole until all the underarm shaping is complete.

If we look back at the full chart, we see that the final neck decrease is done at the beginning of row thirty-nine. The red dashed horizontal line above row forty indicates that we work evenly on the twelve remaining stitches. We work the same number of total rows as we worked on the back between its underarm bind-offs and its shoulder shaping. At that point, we finish the last private-side row, turn, and switch to the shoulder chart.

We work the shoulder chart using the same rules as for the first shoulder, working evenly the neck edge of all rows and binding off at the shoulder edge of the private-side rows.

Size Lines All the Same Color

If the garment's shaping is simple enough, then the boundary lines will probably all be black instead of being different colors. Such charts will often have dropped shoulders instead of underarm curves like “The Basic Vest,” as the shaping will be much less ambiguous. (Imagine the underarm and front neckline chart with black boundary lines for all six sizes.)



The chart may or may not have labels near each size's boundary to indicate which size is which. The sample chart shows small, medium, large, and extra-large without any size labels. We would interpret the outermost boundary segments to be the XL, and each inward segment shows the next smaller size. The shoulders in this design are bound off straight across on a single row (the row above the size's topmost horizontal line), instead of being shaped by binding off just a few stitches at the beginning of each row.²

² We can of course put live stitches on holders, then graft the front and back shoulders together. We can also bind off or put to holders the center stitches of the front and back necks, depending on our preference and/or what will be done with those stitches in the finishing.

Note that the crew neck opening is the same width in all four sizes, with the only difference being in its depth, since the width is indicated by the same vertical segments on the outer edge of stitch twenty-one in both halves of the chart, which go all the way up to each size's shoulder line.

While we work the back, we simply ignore the boundary lines showing the shaping for the front neckline.³

If the Chart Uses a Font

Some books or patterns may not use grid paper to show the stitches and shaping, because they use a knitting font. In such charts, the front neck might be shown with a blank area, similar to the version of the underarm and front neckline chart on the next set of facing pages.

Since each stitch is represented by an actual symbol, areas without symbols tell us that there are no stitches there.

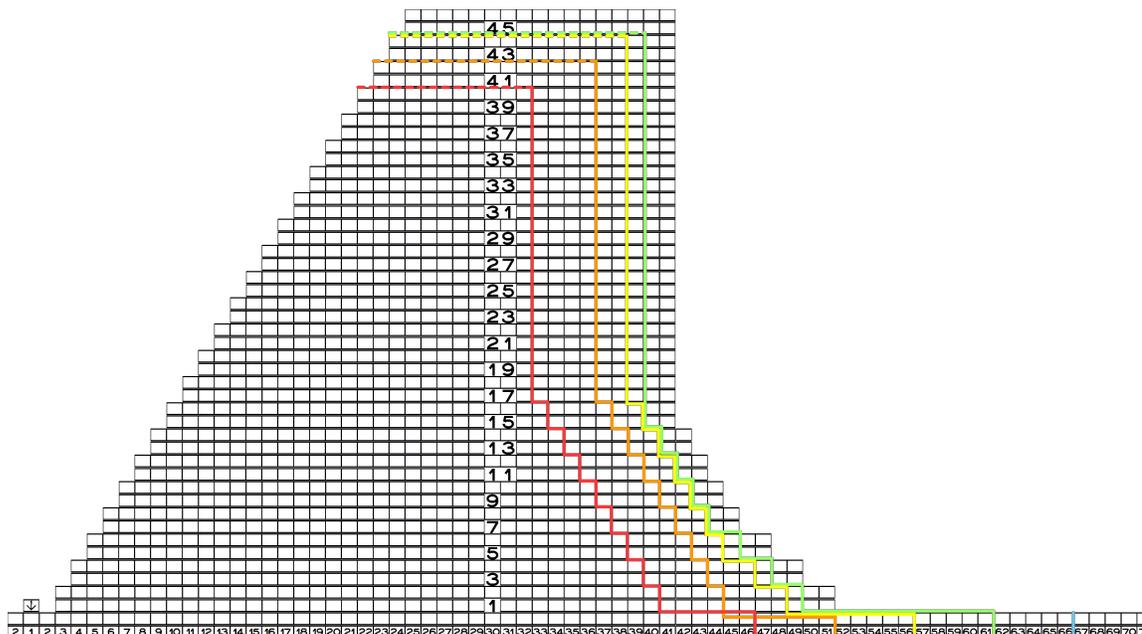
Such charts might not draw the boundary line for the largest size (or sizes, as with this design), relying simply on the number of stitch symbols instead. In this particular chart, the only boundary lines for the largest two sizes show where the underarm bind-offs begin, because the rest of the shaping is indicated by the symbols along the outer edges of the chart. In fact, we technically don't need the purple lines on the outer edge of stitch seventy-one in both halves, because the fact that stitch seventy-one **is** the outermost stitch suffices to tell us that's the full width of the XXXL.

The Underarm

If we look at the boundary lines, we see that the size small binds off six stitches at each underarm. For the XXL, we only see the vertical boundary separating its stitches from the XXXL's stitches. There's no boundary line above the stitch symbols in locations sixty-six through fifty-two, but neither are there symbols. That blank area shows us that we bind off those fifteen stitches.

For the underarm curves, we have exactly the same boundary lines as before for the size small. For the XXL, we have to bind off or decrease stitches based on the width of the blank area at the beginning of the rows. When we work back on row two and turn for row three, we see that row three actually starts two stitches closer to the center than where row two ends. That means we bind off two at the beginning of row three. We see the same two-stitch difference on the next five rows, so again we bind off pairs of stitches. The beginning of rows nine through sixteen is one stitch closer to the center than where the rows below them ended, so we decrease one stitch at the beginning of those eight rows.

³ Don't try to make this vest either. The chart was created only to serve as an example of simpler shaping.



When There's a Stitch Pattern

When we move beyond plain old one-color stockinette, our projects might use intarsia, stranded color knitting, purl texture patterns, or texture patterns using cables and/or twists.

For the first three types of stitch patterns, it's relatively easy for the designer to use either

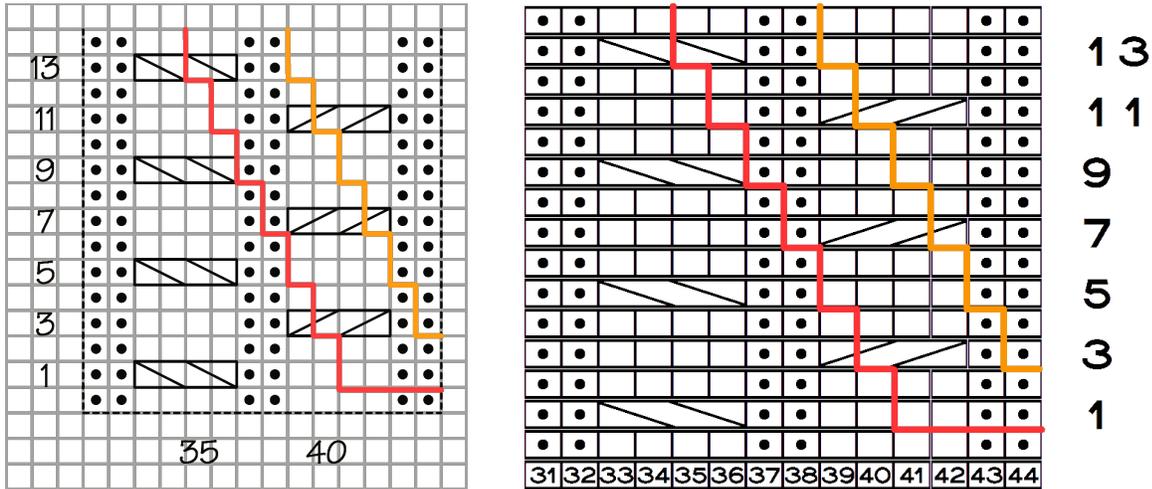
- ☉ a grid, which needs boundary lines along all fabric edges for all sizes
- ☉ a knitting font, which means at least some of the shaping may be shown with blank areas, like the necklines and the largest sizes' outer edges

If the project uses cables, twists, or other knitting operations that use more than one stitch, however, there are problems when shaping runs across the multi-stitch symbols.

Let's look at a small example using both charting methods. Some cable crossings are affected by the underarm shaping for the small and medium sizes.

Positioning the Decreases

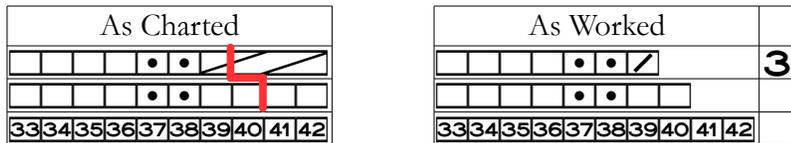
When we get to row three in the size small, we've already bound off stitches forty-two and forty-one. Now we need to work the first underarm curve decrease, and the boundary line runs right through the cable crossing. Depending on our preference, we'll decrease



- ☉ in the very edge with stitches forty and thirty-nine
- ☉ one stitch from the edge with stitches thirty-nine and thirty-eight
- ☉ two stitches from the edge with stitches thirty-eight and thirty-seven

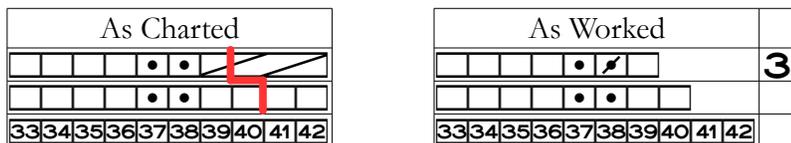
Decreasing in the Edge

This case is the easiest for this location in this project with this stitch pattern. We're working with the last two stitches in a cable column, so we use a knit decrease that leans the direction we want (K2tog or SSK). In the as-worked mini-chart, the decrease points at the fabric edge, making it mainly invisible.



Decreasing One Stitch from the Edge

In this case, we'd knit the stitch that starts out in location forty, then work a P2tog on the next two stitches, which are the last cable knit and the first reverse stockinette purl.



The resulting stitch will be the new stitch thirty-eight, so we keep the full width of the reverse stockinette between the two cable columns.

Decreasing Two Stitches from the Edge

In the third case, we work the decrease with the row's third and fourth stitches. Let's look at the outcome if we P2tog the two stitches of reverse stockinette.



This choice narrows the reverse stockinette to one stitch, which the chart shows shouldn't happen until row seven. If we want to keep two stitches of reverse stockinette all the way through row six, we have to work this row's shaping decrease at a location other than our usual preference, using either of the two previous options.

Keeping the Stitch Pattern Intact

In general, the farther from the fabric edge we work shaping decreases, the more we need to look at the chart's surrounding stitches and rows to see which decrease we need to use and exactly where we need to work it.

We may occasionally have to work a decrease somewhere other than our preferred location so that the stitch pattern remains uninterrupted as long as possible.

The Larger Issue

We might think the designer should have charted on row three some public-side knits and a decrease instead of this cable crossing, but is that really a solution? First, we all prefer to decrease at different distances from the edge of the fabric. The designer can't accommodate all those preferences in a single chart. Second, only the size small has to use some single stitches and a decrease. The other five sizes actually work a 2/2 cable in this location. Trying to show the most accurate symbols for the small wreaks havoc for all the larger sizes.

Should designers therefore create a separate chart for each size? Doing so allows the chart to change crossings to knits and/or purls when the shaping goes through them, but separate charts still wouldn't solve the problem that we all do decreases at different places in the shaping row.

The designer can include a general rule to cover this situation, like "Wherever a cable or twist crossing is divided by a shaping boundary, consider the stitches inside the boundary line as ordinary knits and/or purls." That kind of statement is fine if we can read the pattern's language, but what if we can't? In those cases, we have to use our best judgment, com-

binning what we see in the surrounding area of the chart with our knowledge that cables and twists make the fabric narrower.

But there's another facet to this problem as well.

Narrow Cables

Since these cables are just four stitches wide, the crossings divided by the size small's red boundary line can just be thought of as plain knits. For the crossing on row thirteen, there are only three stitches of the cable we have to deal with. If we want to decrease two stitches in from the edge, we'll need to P2tog the final knit in the cable and the first purl in the reverse stockinette to keep it two purl stitches wide, exactly as we saw before.

For the size medium, the cable crossing in row seven will keep three of its four stitches once we make the decrease. We can use a knit decrease here, because even if we prefer to decrease two stitches from the edge, those two stitches are the last two of the cable column. We therefore won't disturb the reverse stockinette that follows it.

Wide Cables

If the cable is six or more stitches wide, however, then simply working as knits however many stitches are inside the boundary may, depending on how far we are from the previous crossing, allow the fabric to relax too much and wind up wider than it ought to be, exactly as we saw when I cast on too many stitches for the Aran sampler in part one.

Some of us might want to do a modified crossing using however many stitches of the cable will remain after the shaping, working a K2tog in the back stitches to simultaneously do the shaping decrease, continue the stitch pattern, and pull in the fabric.

Others of us might do a K2tog in the back portion of the **previous** crossing, because we prefer a column of public-side knits once there are too few stitches to work the full crossing. We therefore anticipate what the fabric will, and ought to, do because we can look ahead in the chart much more easily than we could in written-out instructions.

Finding the Best Solution

When a shaping boundary runs through a multi-stitch knitting operation, we may have to try several combinations of the following factors to get the final appearance we want:

- ☉ the exact decrease we use
- ☉ the exact place we work the decrease
- ☉ how we handle the multi-stitch operation when we no longer have its full number of stitches

For the third factor, some of us will make cables and/or twists narrower as we decrease

away their stitches, changing, for example, what starts as a 2/2 cable to a 2/1 cable to a 1/1 cable. Others of us will switch the cable to a plain column of public-side knits as soon as we decrease away any of its stitches, so we may need to do additional non-shaping decrease(s) during the final crossing to keep the all-knit column from spreading wider than the cable.

If we're not sure what will look best, we'll need to experiment. We start with a best guess for each of the three factors.

1. We work the combination of decrease, location, and alteration of the multi-stitch operation, then work a few more stitches of the stitch pattern.
2. We evaluate the appearance, seeing if it harmonizes with the surrounding fabric.
 - (a) If we're satisfied, we continue the shaping row from that point.
 - (b) If we aren't sure, we go to the next step.
3. We turn right there in the middle of the row and work a shortened row in the stitch pattern, working a few stitches past the combination so we can see the effect when it's surrounded by fabric on all sides.
4. We again evaluate the appearance.
 - (a) If we're happy, we frog the shortened row and resume where we left off in the shaping row.
 - (b) If we're not satisfied, we frog all the way back through the combination, pick different options for any of the three factors, and start over with step one.
 - (c) If we aren't sure, we go on to the next step.
5. If the shortened row stopped near the edge of the fabric, we work all the way to the edge and turn. If we're too far from the edge, we turn right there in the middle of the row. Then we work a second shortened row in pattern.
6. We evaluate the appearance now that there's even more fabric around our combination of the three choices.
 - (a) If we're satisfied, we frog the shortened rows and resume the shaping row where we had turned originally.
 - (b) If we're not happy with the appearance, we frog all the way back to before the shaping, pick a new combination of factors, and start over at step one.

Use a Swatch and Write It Down

To minimize wear and tear on the garment yarn, we can do all this experimentation on a swatch. A second major advantage of using a swatch is that we don't have to keep frogging each unsuitable attempt. We can * work two or three pattern rows before the row whose shaping details we're testing. We work the shaping combination, work a couple more rows in

pattern, then evaluate. If we don't like how it looks, we might work a public-side purl ridge to mark the end of this test, then repeat from the * until we find a combination we like.

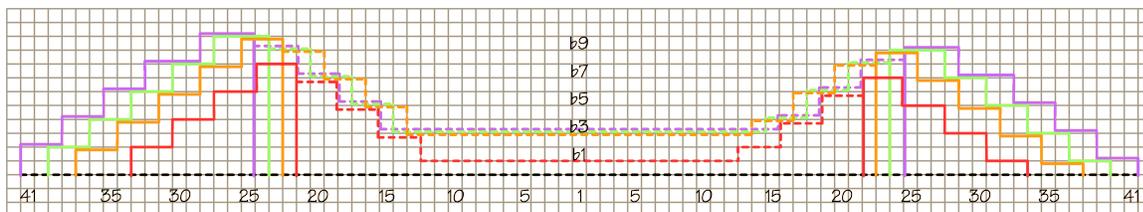
Of course, as we work through these permutations, it would be a good idea to write down the choices we make for each of the three factors in each test. First, doing so will prevent us from trying the same combination again. Second, we don't have to try to remember what each combination looked like. If we have a swatch with six or eight combinations on it, we might decide that test three, which used “decrease X done at position Y with multi-stitch operation alteration Z,” would be perfect for a shaping location we encounter two inches (and however many—*cough*—days, weeks, months, or years) later.

It would certainly be useful to add these notes to whatever other notes we're keeping for the current project. If we keep a list of general knitting tips and tricks, we might want to add some of these results to it also (“When I decrease a stitch from a cable, I will never do a smaller cable on the stitches that are left.”), so that we can refer back to them for other projects. We may avoid reinventing the wheel, and re-testing a wheel we already know we don't like, if we write down all these little discoveries as we make them.

Back Neck Shaping

A garment's front neck shaping usually starts somewhere between the underarms and the shoulders, so its first shaping row will be close, relatively speaking, to the underarm bind-offs.⁴ Back necks, though, if they are shaped, tend to be much shorter, so their first shaping rows will be higher, closer to where the shoulder shaping begins.

Here's the shoulder shaping chart with back neck shaping added, showing the same four sizes as the original chart for the exact same reasons. How do we interpret this version?



First of all, those of us who prefer a little more fabric on the back of our neck can simply work all the way across each row, completely ignoring the dashed boundary lines and working only the outer edges of the shoulder shaping shown by the solid boundaries. (We still ignore the solid vertical segments around stitches twenty-two through twenty-four, because they represent the front neckline edges.) Ignoring the back neck shaping will take the back neck all the way to the top of the shoulders exactly as it did in the original chart.

⁴ One exception is a cardigan with a very deep V-neck, which may begin its neck shaping just a few rows above the bottom edge.

In other words, just because back neck shaping is shown, we can simply ignore it if we so choose.

The Size Medium

As we begin row B1, we bind off the first three stitches because of the orange solid horizontal segment below stitches thirty-seven through thirty-five.

We work toward the end of row B1, where we see a vertical segment past stitch thirty-seven. Since that vertical line is directly above the one in the unnumbered “foundation” row below it, we work the end of row one evenly.

Row B2 starts with an orange solid horizontal boundary segment below its first three stitches, stitches thirty-seven through thirty-five, so we bind them off. At the end of row B2, the vertical segment on the far side of stitch thirty-four is on top of the vertical segment that separates from the rest of the grid the first live stitch remaining after we bound off at the beginning of row B1. We work through that stitch, then turn.

Row B3 starts with a horizontal segment below stitches thirty-four through thirty-two, so we bind them off. As we look ahead on the row, we see something different.

A Horizontal Segment in the Middle of a Row

The orange dashed horizontal line below stitches thirteen through thirteen indicates row B3 is the highest row in the center of the back neck. The dashed vertical segment on the far side of stitch fourteen tells us to turn after we work it.

But, since the dashed segment is below the middle of the row, not either end of the row, we actually have three choices.

1. We work across the center stitches, then put them to a stitch holder. We could also work them directly onto a spare needle to save a step.
2. We bind off those stitches as we work across them. We may need to put the live stitches before them on a holder or separate needle to avoid straining them.
3. We follow the rules exactly. In that case, we turn after we work stitch fourteen, which means we finish both shoulders as described in the section “Option Three.”

Options One and Two

The first two options finish the shoulders in the same order, first finishing the left back shoulder, then working the right back shoulder.

The Left Back Shoulder

We work all the way to the end of row B3, having dealt with stitches thirteen through thirteen as we like, then turn. After we bind off at the beginning of row B4 because of the orange solid line below its first three stitches, we look ahead and see an orange dashed vertical segment between stitches fourteen and thirteen. Following the previous rule, we turn after we work stitch fourteen.

We see on row B5 an orange dashed horizontal segment below stitches fourteen through sixteen. Because it's more than one stitch wide, we bind off those three stitches. We work the end of row B5 evenly, because the vertical segment after stitch thirty-one is directly above the vertical segment separating from the rest of the grid the first live stitch after the bind-offs at the beginning of row B4.

We go back and forth between the orange solid line showing the outer edge of the shoulder and the orange dashed line showing the edge of the back neck. Because horizontal segments three stitches wide are at the beginning of each row in both the solid and dashed boundaries, we bind off three stitches at the beginning of the rest of the left shoulder's rows, rows B6 through B10.

The Right Back Shoulder

Once we've completed the left back shoulder, we'll need to join the yarn somewhere on row B4 to work the right back shoulder. The question is, Where do we join the yarn, at stitch fourteen or at stitch thirty-one?

Let's answer a different question instead. If we were **not** doing the back neck shaping, then when we had worked past the middle of row B4, which of those two stitches would we have worked first? It's not a trick question, so the answer is "stitch fourteen." Stitch fourteen is closer to the middle of the row than stitch thirty-one.

In this situation, we work this part of row B4 the exact same way. We join the yarn while looking at the private side, because row B4 is a private-side row, and we start with the stitch closest to the center of the row. We bind off stitches fourteen through sixteen because of the orange dashed horizontal line below them, then we work the rest of the right shoulder's back neck shaping in the usual way. We follow the orange solid line at the outer edge of the shoulder and the orange dashed line along the edge of the back neck. The chart shows that at the beginning of rows B5 through B9, we bind off three stitches.

Option Three

In this option, we don't work row B3 all the way across the back. Instead, we follow the rules exactly and turn after working stitch fourteen because of the orange vertical boundary after it. Doing so means we reverse the order in which we work the back shoulders.

The Right Back Shoulder

We turned at the orange dashed vertical boundary segment between stitches fourteen and thirteen on row B3. We now see a horizontal segment below the first three stitches of row B4, stitches fourteen through sixteen, so we bind them off and work to stitch thirty-one, the first live stitch we had after binding off at the beginning of row B3. We finish the right back shoulder as explained in “Options One and Two.”

The Left Back Shoulder

Since we had turned before we worked the center of the back neck, we have to decide what to do with the center stitches, from stitch thirteen through stitch thirteen.

We have the same choices as before: work across them and put them to a holder, bind them off as we work across them, or not work them at all as we put them to a holder. In the first two choices, we join the yarn right where we turned when we worked the left shoulder.

In the third choice, though, we have to join the yarn at the correct place. So the question now is, Where do we join new yarn on row B3 for the left shoulder? Do we join at stitch fourteen or at stitch thirty-four?

Let’s again ask a different question. If we were **not** doing the back neck shaping, which of those two stitches would we have worked first once we got past the middle of row B3? It’s not a trick question, so the answer is “stitch fourteen.”

In this situation, we reattach the yarn at stitch fourteen with the public side facing us since we’re going to be working row B3, a public-side row. We work the right back shoulder the same way we did in “Options One and Two.”

Add Back Neck Shaping to Any Garment

Suppose we like back neck shaping and want to add it to a project with a plain back neck that goes all the way up to the top of the shoulders.

If we chart the shoulder shaping, or if it’s already charted in the instructions, we can simply add back neck shaping to it, making it as deep or shallow, wide or narrow as we like.

Working the Front Shoulders

Note that since this chart also shows the front shoulder shaping, the solid vertical segments in each color around stitches twenty-two through twenty-four in both halves of the chart indicate where the front neckline shaping ended, just as they did in the original shoulder chart.

Since the dashed lines show how we shape the back neck, none of those stitches will be on our needles as we work the front shoulders. We therefore need to follow only the solid

boundaries on the shaped back neck chart as we work the front shoulders. Those lines are all drawn in the exact same places in both versions of the shoulder chart.

Review: Reading a Multi-Size Shaping Chart

On multi-size shaping charts, there may be two different ways the stitches and rows of each size are shown: boundary lines or blank areas. Some charts may use both methods at the same time, especially charts made with a knitting font. Both types of boundaries show us where to bind off (or put stitches to a holder), decrease, or work evenly.

If the chart uses either boundary lines or blank areas to show the front neckline shaping, then as we're working the back, we mentally—and in yarn—ignore the front neckline boundaries or fill in the omitted stitches, unless we really, truly want the back neckline to be exactly the same as the front neckline.

Boundary Lines

A boundary line bends back and forth along the stitches and rows at the edge of its size. To interpret each boundary segment correctly, we use the following rules.

- ☉ At the beginning of a row, if there is a horizontal segment below two or more stitches, we bind off that number of stitches.
- ☉ At the beginning of a row, if the vertical segment is one stitch closer to the center than the vertical segment at the end of the previous row, we do a single decrease.
- ☉ At the beginning of a row, if the vertical segment is on top of the vertical segment at the end of the previous row, we neither bind off nor decrease. We work the beginning of the row evenly.
- ☉ As we approach the end of a row, if the vertical segment indicating its final stitch is one stitch closer to the center than the vertical segment at the beginning of the previous row, we work a single decrease at the end of the row.
- ☉ At the end of a row, if the vertical segment indicating its final stitch is directly above the vertical segment at the beginning of the previous row, we work evenly, neither binding off nor decreasing.
- ☉ If there's a horizontal segment below the middle of a row, that row is the last one worked at that spot. We can work those stitches and put them on a holder, bind them off as we work them, or put them unworked on a holder, depending on our preference and/or what will happen to those stitches in a later step. We then have to work subsequent rows on either side of the middle section with separate balls of yarn.

Blank Areas

Sometimes stitches are omitted, especially to show front neckline shaping. If shaping is indicated by blank areas in the chart, then we can still see where each row is getting shorter or staying the same length.

- ☉ If a blank area two or more stitches wide at the beginning of a row is above stitch symbols at the end of the previous row, we bind those stitches off.
- ☉ If the beginning of a row is one stitch closer to the center than the end of the previous row, we do a single decrease at the beginning of the row.
- ☉ If the beginning of a row is exactly on top of the end of the previous row, we neither bind off nor decrease; we just work evenly from the beginning of the row.
- ☉ If the end of a row is one stitch closer to the center than the beginning of the previous row, we do a single decrease at the end of the row.
- ☉ If the end of a row is exactly on top of the beginning of the previous row, we work the end of the row evenly, without doing any shaping.
- ☉ A blank area above the middle of a row means that row is the last one at that location. We can work those stitches and put them on a holder, bind them off as we work across them, or put them unworked on a holder, depending on our preference and/or what will happen to those stitches later. Additional rows past that point must be worked with separate balls of yarn.

Use Short Rows

We can often switch shaping, especially bind-offs, to short rows, as described in the chapter “Optional Shaping Tweaks.”

Multi-Size Chart Tips

The tips in part one’s “Working from a Chart” will also work well for multi-size shaping charts as long as we pay attention to the vertical boundary segments marking the first and last stitches of each row.

One additional tip for multi-size charts is to make a photocopy, then cut along our size’s boundary lines to eliminate the distraction of stitches and rows for the other sizes, adding row numbers and/or stitch labels to the portions we retain.

If we prefer to chart in the computer, we can type up the chart for the specific size we need.