

IN A NEW SERIES, WE LOOK AT THE IAM'S SYSTEM OF DRIVING THAT STRUCTURES DECISIONS IN A SEQUENCE OF INFORMATION, POSITION, SPEED, GEAR AND ACCELERATION (IPSGA). THIS ISSUE CONSIDERS INFORMATION

IPSGA



INFORMATION

All the time, all the way through

POSITION

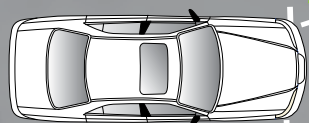
Where should I be now, where should I go – what path ought I take through the hazard

SPEED

What speed should I be travelling at, at each point through the hazard

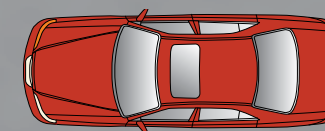
GEAR

What gear should I be in to match my speed, and when/where should the change of gear happen?



ACCELERATION

When can I accelerate away and by how much?



The information phase of the system is the only one that overlaps with all the others. As drivers or riders, we should be taking in information while we are on the road. And we can't help giving it out to other road users, no matter how hard we try.

Information is at the start of the model, because it's where any decision starts. But maintaining the level throughout is key to safe and positive driving. Having information and not using it is no help to anyone. Recognising hazards early gives you the planning time that makes the difference between being proactive and prepared, or reactive and dependent on other road users to control your decisions.

Being proactive also means that you can give other drivers notice of your actions, so that they are not surprised by what you do. Being proactive means that, having planned your actions, you will be monitoring other road users to see how (or even if) they are reacting to you. You will be looking for reactions – watching the other people involved to see how they are behaving, and ready to alter your actions if theirs dictate that. For example, checking the driver in the side road is looking at you before you commit to passing in front of them.

At the basic level, information is given by signals – but there is far more going

on than signals alone. We all use our vehicles in ways to give others information. Speed, direction, the rate of change for both of these, the angle of the rider's head, and many other subtleties are all available to other drivers.

Other road users learn from your actions, and you from theirs. You can also take in information from the landscape such as gradients, the sharpness of curves, the distance you can see, the weather and road-surface conditions. They are all visible. The sound of a siren,

'You will be looking for reactions – watching the other people involved to see how they are behaving, and ready to alter your actions if theirs dictate that'



or a large engine, or the smell of diesel on the road surface engage your other senses and give you different information. Vibration from the wheels or the engine can also give helpful clues about the road, the vehicle, your speed – and even perhaps your own condition.

We also feel things – both physically and emotionally – that give us valuable information about ourselves, allowing us to recognise that we are tiring, or reacting differently. There is a wide range of information about your emotional and physical condition that can alter the way you make decisions and the quality of the ones you make.

Within the information phase, three stages are commonly used to analyse what is going on:

ABSORB INFORMATION

Always observe everything around you, including what's behind you, to the sides and potentially in your blind spots; you should aim to have a feel for what is going on – 360 degrees around you. Mirrors should be correctly adjusted so you can see completely.

PROCESS INFORMATION

Using your observations, plan how to deal with the hazards (and opportunities) you have identified and make decisions, using the rest of the system as a structure. Doing this early is important, and when learning to use the system helps drive your vision further forward. If you are reviewing your performance, this is an easy key to check yourself against. Do you ever feel pressured by the speed of the decisions you are making, or do you find yourself saying 'suddenly that appeared'?

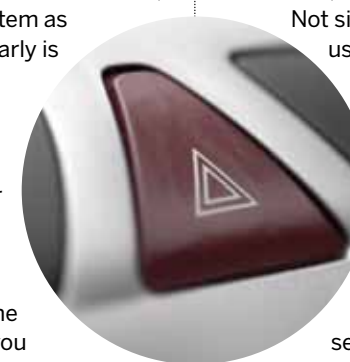
Was it really sudden? Or were there indications that you failed to pick up on? These are extremes – but checking that you are looking well ahead, and widely as well (the opposite of tunnel vision) is an important occasional self-check. If you have to process the information in a rush, you are taking it too late (or travelling too quickly).

GIVE INFORMATION

We all give information, but don't always realise the signals we are sending. Sometimes, we can be better at it.

Not signalling to another road user when you should have done, or doing so too late, are warning signs that this area needs attention.

The horn, headlights, and even hazard warning lights are all deliberate signals. Use your vehicle position to send signals, too: for example, angling the front of the car towards the kerb lets an oncoming emergency vehicle know that you are moving out of the way. Angling the bike so the traffic ahead understands which side of it you are going to filter as you approach – these are examples of giving information that you can use. Sometimes they help others – sometimes they help others to help us.



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IN THE SECOND INSTALMENT OF OUR NEW SERIES, WE LOOK AT THE IAM'S SYSTEM OF DRIVING THAT STRUCTURES DECISIONS IN A SEQUENCE: INFORMATION, POSITION, SPEED, GEAR AND ACCELERATION (IPSGA). OUR PREVIOUS ISSUE (SPRING 2011) FOCUSED ON INFORMATION AND HERE IS THE NEXT PHASE – POSITION

The first element is always information – you cannot make a decision about where to position yourself without knowing where you want to be. So, forward observation (as well as observing what is behind) is the first key to good positioning. Information keeps running through this all the time – you need to constantly monitor what's happening, visually, audibly and physically.

The decision is not really one about a single position, but one about a series of positions through a hazard or series of hazards – a line or course. It starts, inevitably, with where you are now and develops from there: approaching a right-hand turn into a side road, for example, would develop a line that moves out towards the centre of the road, then turns through the junction itself, and moves away along the side road. This 'whole line' is what the position phase is there to deal with.

There is a series of conventional things that control positioning – the principle of positioning so that you can see and be seen by others, following distance from the vehicle in front, and road lane

markings for starters. Then there is having space between you and other road users, maintaining as smooth (or straight) a path as the circumstances make sensible, and the message your position gives to other road users. This is not the whole list, and each element interacts with the next. So, while you are thinking about following distance and whether you can see round the vehicle in front, while, at the same time, spotting the lane markings and working out which lane is the one you need, you are also avoiding the potholes for good measure.

PLAN AHEAD AND NOT JUST LEFT

The earlier you think about your intended position, the easier it is likely to be to achieve it. If you are in town traffic, this gives you longer to deal with the other drivers to get there. If on a country road, it allows you to have a smoother line with all the benefits that can offer. Your position also governs your speed – that's why they come in that order in the system. An early position plan allows for a more planned speed phase to the system as well, allowing safety,

smoothness and all their benefits to come to the fore.

Positioning for view or to be seen (essentially the same thing) is where the greatest controversy tends to develop. On left-hand bends, this does mean sitting out so that you can see round the bend – and be seen by those approaching from the other direction. However, it does interact with other things involved in positioning, and if there is traffic coming the other way, you should 'surrender' some positioning to have a safe space between you and the oncoming traffic. That may, of course, mean that you also need to reduce speed to match the altered amount of vision available. Positioning for view is also a big issue when following another vehicle (easiest to picture if you think of it as a bus or a tipper lorry) along the road. If there are left-hand bends, you will sometimes gain view ahead of it or be looking along its left-hand side into a left-hand bend – so holding back far enough to let you see there is a positioning issue is well worth some attention.

There are times when altering position will not gain you any real advantage. If you already have a lengthy view, or so much relative to your speed that increasing it is of no real value, then there is most likely no advantage to be gained by positioning. So, in towns, there is usually no point in substantial positioning for bends. There can be for the other hazards, however – to create space between yourself and other traffic, including cyclists, of course. Likewise, having room between you and pedestrians is an important safety measure. Positioning in town can also be used to allow you a better view between parked vehicles, so that you can see any activity between them. For motorcyclists (and cyclists), positioning when filtering is complex, but the principle that having space from the traffic is a good thing is a sound one.

EVERYTHING'S ALL RIGHT

Stereotypically, for a right turn you position yourself by the white line before it. For a right-hand bend, however, you position yourself to the left, to gain maximum vision around it. Why the difference? The right turn is really governed by the idea of lanes of traffic – it allows other road users to pass you on your left, while you wait for a break in the oncoming traffic. The bend, however, is usually a situation in which you can be a bit more self-centred in where you place yourself on the road. Following the principle of how much difference the presence of other traffic can make, for a roundabout in traffic you follow the lanes marked on the road, because that helps other drivers understand where you are

going. Without another road user in sight, the straightest line becomes preferable with all the advantages it has – but the observation is important to the decision. 'Nothing about? Straighten it out' is a phrase to consider. Straight lines are always attractive – but be careful about straightening a line where it will confuse others, or where you cannot see properly into a curve which might hide a person, or an entrance that, in turn, has another road user in it. You must know it is safe, not just think it is.

Being in a good position will allow you more information, or better-quality information (for example, it is easier to judge the length of the gap between the two vehicles ahead of you if you can see into the gap, rather than from behind the rear vehicle). This is part of the reason for the overtaking decision being made so often after a move to the right-hand side of the road to make an assessment. Being in a poor position can leave you with poor information and reduce your options, reduce your safety simply by putting you too close to something else, or, if manoeuvring, leave you having to make an extra manoeuvre.

Good positioning is a really good base from which to manage the next step – the decision about the speed you travel at. Thinking about positioning is a vital element of advanced driving.

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IN OUR PREVIOUS ISSUE, IPSGA FOCUSED ON POSITION. HERE IS THE NEXT PHASE – SPEED

Like all stages of the system, information influences the speed phase. So, for example, depending on the hazard and circumstances you are dealing with, it may be necessary to check what's behind, or to give signals. Generally, the more complex the hazard is, the truer this becomes. Additionally, the speed you are travelling at – or the rate at which you are changing speed – gives information to other road users.

In *Roadcraft*, this phase of the system was known until the mid-1970s as 'brake' rather than 'speed'. That tells us a lot about what this element of the system is usually about. It was changed from brake to speed to take account of the use of acceleration sense – not because of some change in the 1970s that meant there was any more expectation that approaching a hazard would give rise to speeding up (although it does allow for that as well).

A hazard is defined as anything that contains an element of actual or potential danger. This phase of the system is about deciding at what speed to negotiate the hazard – and how and when to achieve that speed. Sounds simple, but complex hazards require a detailed plan.

PLANNING AHEAD

There will be many occasions where the appropriate response to the consideration of speed is that there is no need to do anything. Perhaps the bend is not sharp enough to cause a change in the speed, or you are already driving slowly enough to deal with the car approaching the give way lines in the side road. On other occasions there will

be a clear need to slow down. That is the simplest level of the decision made at this stage.

But remember that you will already have decided your position – where you are now, where you want to enter the hazard, and, if you can see through it, where you want to leave it. The same description applies to speed. This is not just the decision of what your entry speed to the hazard is, but also the decision about what it will be at each point along the path you have decided on at the position phase.

CORNER CASE STUDY

Let's consider a right-hand bend, which has a slight left-hand kink leading into it. The bend has bushes obscuring vision off to the right – but allows vision all the way across the left-hand kink, so the entire approach to the right-hand element is visible. It is possible to plan speed through the entire hazard in one go – the left-hand curve becomes part of the approach to the right-hand bend, rather than a separate hazard itself. This means that you are now considering where to decelerate through a more complex scenario, which introduces the option of varying the rate of deceleration. Approaching the overall hazard, the vision loss is into the right-hand curve, and the slowest point will be just before that curve (if appropriate, allowing time for a gear change before turning in).

Assuming that the approach speed is such that acceleration sense is not going to manage the speed loss, it can now be planned with three phases – some firm loss approaching the left-hand kink, a

gentler section through the left curve, and some firmer loss again after that. Of course, all sorts of other factors may be relevant in such a scenario – but this gives a schematic idea of how the plan for the speed section can be a complex one, and is about speed along a line, rather than simply at a point.

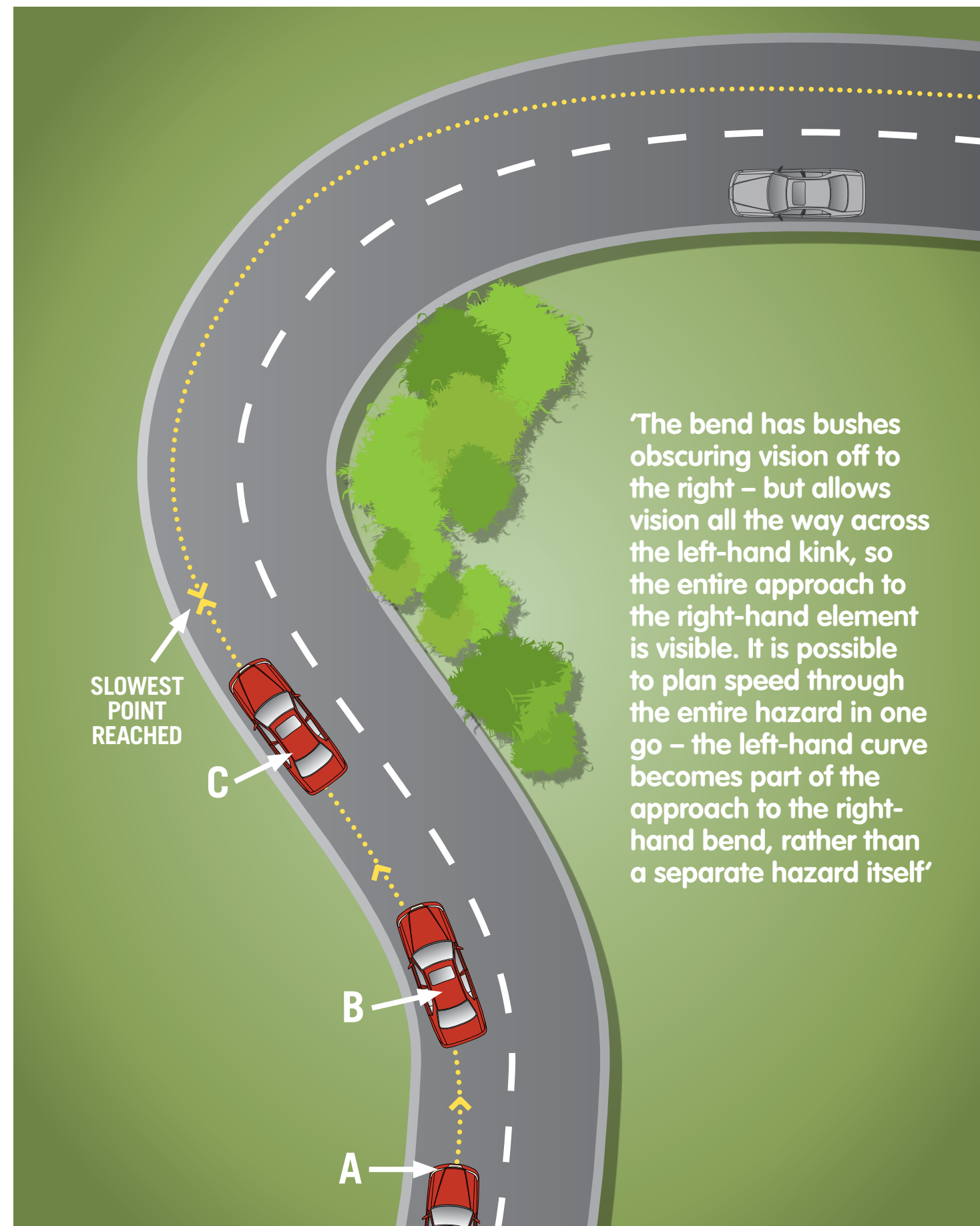
We've covered where and at what rate to change speed. The other main aspect is to decide how. In normal driving circumstances, this means either braking or using acceleration sense. If you drive down hills, this is where the consideration of whether to run downhill with a lower gear restraining the speed of the vehicle is made (albeit which gear comes in the next phase). It is also where, in wintery conditions, you consider slowing down using the gears rather than the brakes.

Of course, you can also be considering where and how to maintain a constant speed through all or part of a hazard. That should be just as conscious a decision as one about changing speed.

SEQUENCE OF SPEED

It is important to remember the sequence of things, and a reminder here may be useful: the decision is about what speed to travel at along the path already decided on – the path decides what speed is appropriate. Attitudinally, it is important to keep this sequence correct to ensure that safety is maintained – position comes before speed, and the discipline of that mental process is important... 'speed for the conditions, gear for the speed'.

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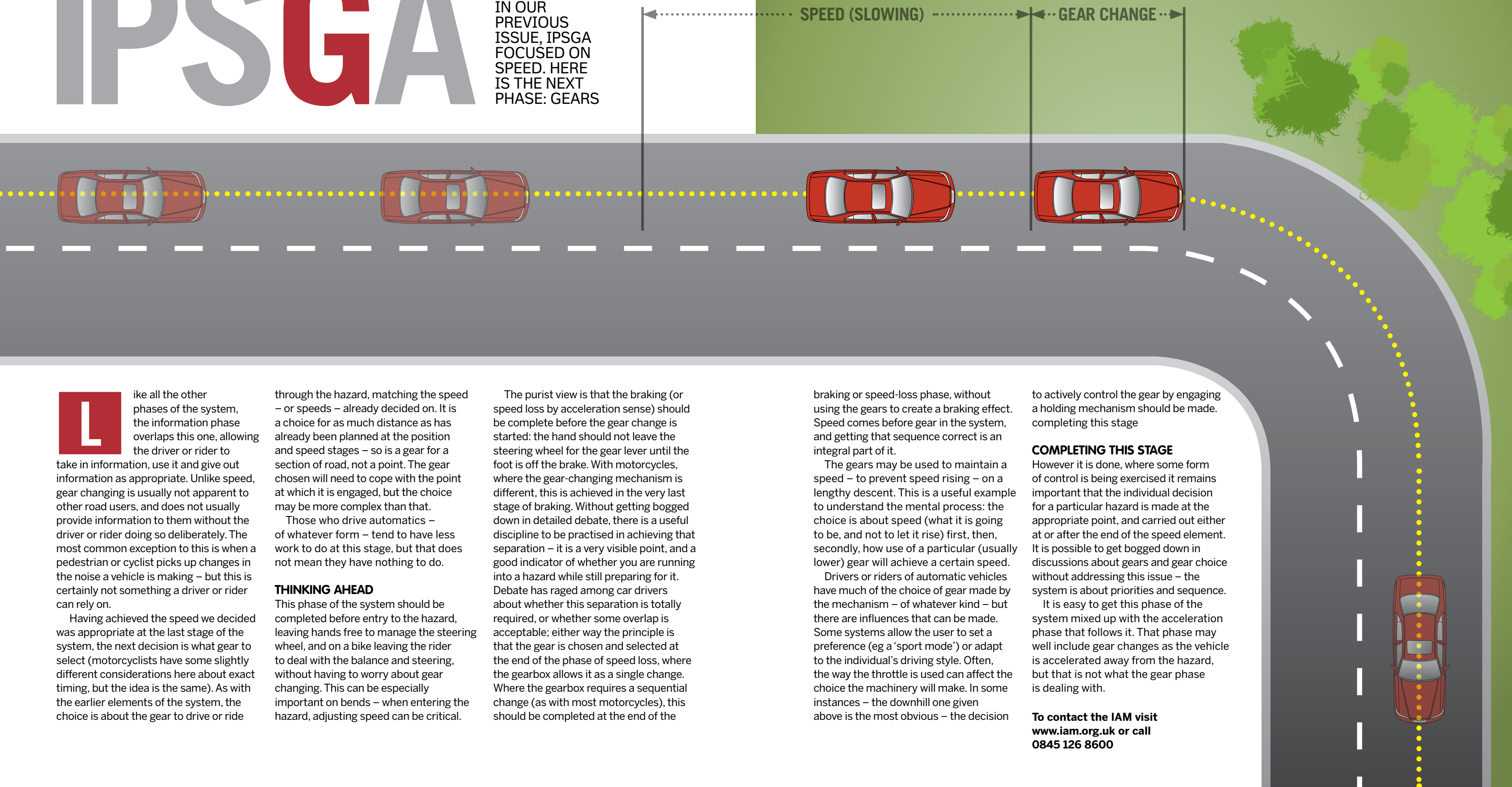




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IN OUR PREVIOUS ISSUE, IPSGA FOCUSED ON SPEED. HERE IS THE NEXT PHASE: GEARS

Gear-change should be completed before entry to the hazard, leaving hands free to manage the steering wheel, and on a bike leaving the rider to deal with the balance and steering, without having to worry about gear changing. This can be especially important on bends – when entering the hazard, adjusting speed can be critical



Like all the other phases of the system, the information phase overlaps this one, allowing the driver or rider to take in information, use it and give out information as appropriate. Unlike speed, gear changing is usually not apparent to other road users, and does not usually provide information to them without the driver or rider doing so deliberately. The most common exception to this is when a pedestrian or cyclist picks up changes in the noise a vehicle is making – but this is certainly not something a driver or rider can rely on.

Having achieved the speed we decided was appropriate at the last stage of the system, the next decision is what gear to select (motorcyclists have some slightly different considerations here about exact timing, but the idea is the same). As with the earlier elements of the system, the choice is about the gear to drive or ride

through the hazard, matching the speed – or speeds – already decided on. It is a choice for as much distance as has already been planned at the position and speed stages – so is a gear for a section of road, not a point. The gear chosen will need to cope with the point at which it is engaged, but the choice may be more complex than that.

Those who drive automatics – of whatever form – tend to have less work to do at this stage, but that does not mean they have nothing to do.

THINKING AHEAD

This phase of the system should be completed before entry to the hazard, leaving hands free to manage the steering wheel, and on a bike leaving the rider to deal with the balance and steering, without having to worry about gear changing. This can be especially important on bends – when entering the hazard, adjusting speed can be critical.

The purist view is that the braking (or speed loss by acceleration sense) should be complete before the gear change is started: the hand should not leave the steering wheel for the gear lever until the foot is off the brake. With motorcycles, where the gear-changing mechanism is different, this is achieved in the very last stage of braking. Without getting bogged down in detailed debate, there is a useful discipline to be practised in achieving that separation – it is a very visible point, and a good indicator of whether you are running into a hazard while still preparing for it. Debate has raged among car drivers about whether this separation is totally required, or whether some overlap is acceptable; either way the principle is that the gear is chosen and selected at the end of the phase of speed loss, where the gearbox allows it as a single change. Where the gearbox requires a sequential change (as with most motorcycles), this should be completed at the end of the

braking or speed-loss phase, without using the gears to create a braking effect. Speed comes before gear in the system, and getting that sequence correct is an integral part of it.

The gears may be used to maintain a speed – to prevent speed rising – on a lengthy descent. This is a useful example to understand the mental process: the choice is about speed (what it is going to be, and not to let it rise) first, then, secondly, how use of a particular (usually lower) gear will achieve a certain speed.

Drivers or riders of automatic vehicles have much of the choice of gear made by the mechanism – of whatever kind – but there are influences that can be made. Some systems allow the user to set a preference (eg a 'sport mode') or adapt to the individual's driving style. Often, the way the throttle is used can affect the choice the machinery will make. In some instances – the downhill one given above is the most obvious – the decision

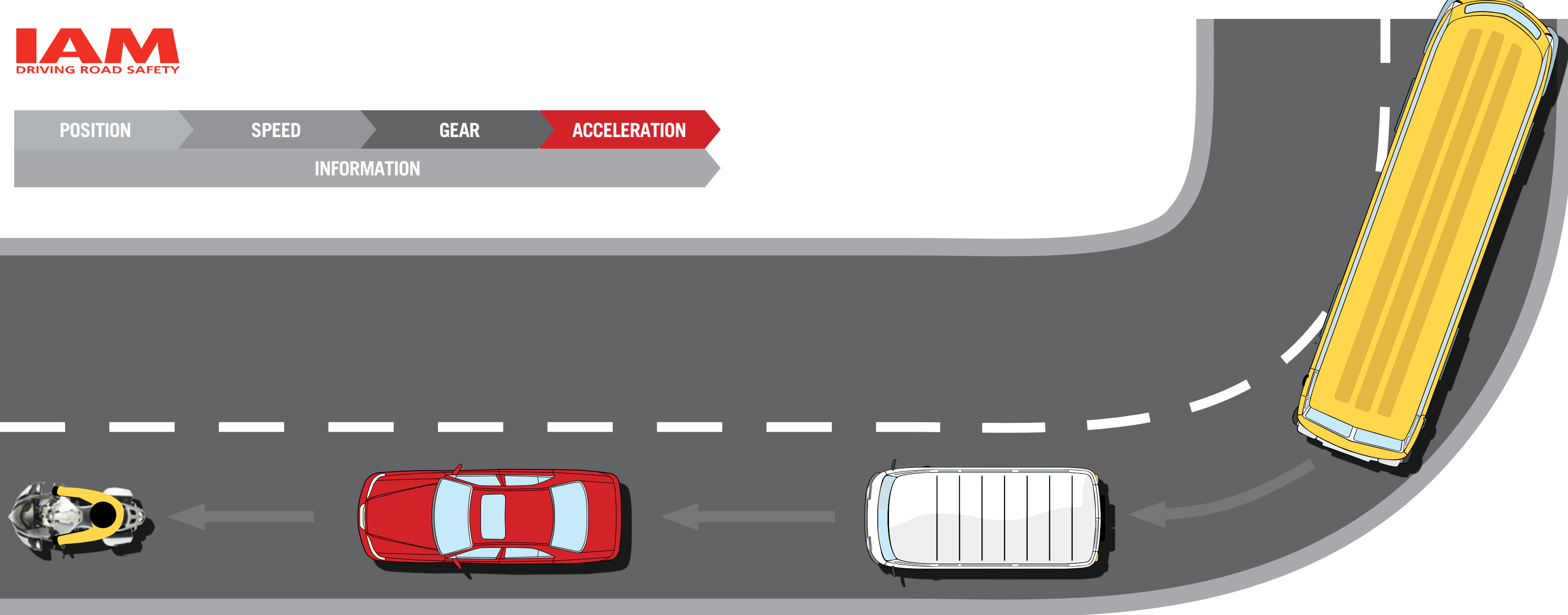
to actively control the gear by engaging a holding mechanism should be made, completing this stage

COMPLETING THIS STAGE

However it is done, where some form of control is being exercised it remains important that the individual decision for a particular hazard is made at the appropriate point, and carried out either at or after the end of the speed element. It is possible to get bogged down in discussions about gears and gear choice without addressing this issue – the system is about priorities and sequence.

It is easy to get this phase of the system mixed up with the acceleration phase that follows it. That phase may well include gear changes as the vehicle is accelerated away from the hazard, but that is not what the gear phase is dealing with.

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TO COMPLETE OUR GUIDE
TO EACH PHASE OF IPSGA,
WE DEAL WITH THE LAST
ELEMENT IN THE SYSTEM:
ACCELERATION

Until now, the considerations looked at have all been about one thing: identifying and preparing for a hazard. We have seen it, sorted out the line we wish to follow through it, the speed that we believe correct for it and matched our gear to that speed. Now it is time to do something different – actually ride or drive through it.

There's an important thing to understand about acceleration. In this context, it means pressing the accelerator

or twisting the throttle. Acceleration doesn't necessarily mean going faster. It may mean that, but it may also mean applying power to maintain a constant speed (pressing the accelerator or twisting the throttle enough to prevent the car or bike from slowing down, but not enough to build up speed).

Those with long memories may recall that the old (pre-1992) versions of *Roadcraft* had two points on the diagram illustrating the system of

car or bike control of the vehicle turning to make this point – labelled A1 and A2. Point A1 was at the start of the vehicle's curved path; point A2 was where it had (just) properly straightened out again. This is an illustration of the point – the simple concept was that if the road is dry, acceleration can actually happen from point A1. However, at A1 it may be necessary to keep speed constant if the road is slippery, only actually going faster from point A2.

In the variety of circumstances that can be found on the roads, there is inevitably some variation in how acceleration is used. It could be that limited acceleration is appropriate, or acceleration in part but not all of the path. Probably the most common variation is that of accelerating as a limit point 'opens' – moves further away – allowing the throttle to be twisted gently or the accelerator squeezed similarly. Like position and speed, this phase is not about a point on the map, but about a path and how it is travelled.

Acceleration takes the vehicle out of the hazard and into the next piece of road. It concludes dealing with the particular hazard, and sends the driver or rider off to deal with the next one.

BIKES, BUSES AND TRUCKS

As with all other phases of the system, information gathering and giving go on throughout.

There are some particular issues that affect vehicles other than cars

that deserve a mention – and deserve understanding by car drivers, too.

Motorcycles: The use of acceleration is effectively the same on a bike as in a car. Some of the dynamics are different, but the end result is that it works the same way for the rider as the driver.

Buses, lorries, vans: If you have got the rest right, this phase is the easy part. It is more often the case in a large vehicle that you delay the start of acceleration, the reason being perhaps most easily understood by picturing a city-centre bus full of standing passengers going round a corner. If the speed is right at entry into the curve, accelerating will mean that

standing people are destabilised as the bus speeds up – so waiting until the bus is straight and settled before accelerating is the obvious option.

Judgement of how much to press the pedal or twist the grip is very important, and combines with sensitive judgement of its timing.

Of course, as the driver or rider leaves one hazard safely, applying acceleration to do so, they will already be thinking about the next one, gathering information from this early stage, adding it to that already gained, and starting to plan how to deal with the new hazard using the same sequence.

'Acceleration takes the vehicle out of the hazard and into the next piece of road. It concludes dealing with the particular hazard, and sends the driver or rider off to deal with the next one'