TERUMI MORITA

THE WORLD COOKING SYSTEMS ATLAS · CHAPTER 9

Sauces as Cooking Systems

The six sauce machines, and the cuisines that built each one

After this chapter, the next time a tare tastes flat, a mole tastes one-note, a pesto turns oily, a gastrique breaks, or a custard sauce curdles — you'll know which of the six sauce machines the recipe was running, and at which moment the machine slipped its design.

Terumi Morita
Japanese chef trained in French cooking · Ho Chi Minh City
terumimorita.com · substack.com/@teroom

From The World Cooking Systems Atlas

> *A sauce is not a topping. It is a small machine, with one job. After this chapter, you will be able to look at any sauce — French, Mexican, Korean, Italian, Levantine, Thai — and name which of six machines is running inside it.*

---

1 · The wrong idea about sauce

For most home cooks, the word "sauce" lives in a small, slightly anxious corner of the kitchen. It is what you make at the end. It is what goes over the thing. It is often the part of the recipe the cook quietly hopes will not break.

That anxiety is a symptom. It comes from a category error.

A sauce is not the *finish* of a dish. A sauce is the *concentration* of one cooking variable, isolated from the main ingredient and delivered onto the plate so the eater meets that variable in pure form. The whole point of a sauce is to take one of the seven flavor axes from Chapter 1 — salt, acid, fat, aroma, heat, texture, memory — and turn the volume up on it, in a small enough container that the dish can carry it without drowning.

A tomato sauce concentrates tomato — its acid, umami, sweetness — into a form that plain pasta can be dressed with without itself having to taste of tomato. A béchamel turns fat and starch into a neutral carrier so an aromatic (cheese, nutmeg, anchovy) can be suspended evenly. A mole compresses twenty aromatic ingredients into a single paste that sits on the back of one piece of turkey or pork. A tare distills soy, mirin, dashi, and time into a brushable lacquer.

Once you see a sauce as a *concentration machine*, the anxiety goes down. The cook is not "making sauce." The cook is choosing which variable to concentrate, choosing which of six machine-types is appropriate, and operating the machine.

There are six machines. They are common to every cuisine on earth. The ingredient skins change — pesto's olive oil is Liguria's, gochujang's chili paste is Korea's, mole's chocolate-and-chili is Mexico's — but underneath, the machines are the same six. After this chapter, the cook reads any sauce on any plate in any cuisine and asks, *which machine is this?* That is a different question from *how do I make this?* It is the question that comes before.

This chapter is also the global-theory pair to the **Sauce Notebook** — a separate volume that takes the French foundation sauces and works one corner of this map at

recipe granularity. The Atlas chapter is the lens. The Sauce Notebook is the worked case.

---

2 · The six sauce-machines

A sauce, anywhere in the world, is running one of six processes. Sometimes two. Rarely three. But the dominant process is always one of these six. Naming it correctly is the cook's first move.

The six are:

Reduction — water leaves, flavor concentrates.

Emulsion — fat and water are forced into one body that should not exist.

Slurry — a starch is hydrated, then heated until it thickens a liquid.

Paste — solids are ground or pounded into a concentrate, often with fat.

Coulis — fresh ingredients are pureed cold, or near-cold, uncooked.

Jus — the cooking liquid of the dish, lightly worked, becomes the dish's own sauce.

Each has a defining variable, a failure mode, and a few cuisines where it is central. The rest of this chapter walks them in order — hottest and slowest (reduction) to coldest and fastest (coulis), with jus as the special case.

Before walking: a note on what is *not* on this list. A roux is not a sauce-machine. It is a sub-component — a cooked fat-and-flour paste — used inside a slurry-machine (béchamel, velouté) or a reduction-machine (gumbo). A stock is not a sauce; it is the raw material that goes into a reduction or a jus. A vinaigrette is a sauce — a temporary emulsion-machine. A pickle is, in the Atlas vocabulary, a condiment-machine, handled in Chapter 10.

Six machines. Each with one job. Each with one common failure.

---

3 · Machine 1 — Reduction

A reduction sauce is the simplest machine in the kitchen and the one most often left running too long. The principle is brutal: heat a liquid, let water evaporate, and what remains is the same dissolved solids and the same flavor compounds, now in a smaller volume. Concentration without addition.

Watch a small pan of pomodoro on the back of an Italian stove for forty minutes and you can see the machine work. The crushed tomato goes in thin and red-orange and bright. It sits at the edge of a simmer; the pan does not get a lid. Water leaves the surface. The sauce darkens, shifting from red-orange toward brick; the texture goes from watery to coating. Taste it at fifteen minutes — it tastes of cooked tomato, but thin. Taste it at forty — the same sauce, now half the volume, tastes of the tomato concentrated into itself. Nothing was added. The water left.

This is the machine underneath an enormous range of sauces. The Italian tomato-sauce-base is the cleanest demonstration. The French demi-glace is the same machine on a slower schedule. The Japanese tare — soy, mirin, sake, dashi, sugar, simmered until it goes from thin and brown to syrupy and almost black — is the same machine on a salt-and-aroma chassis. The Vietnamese caramel-fish-sauce base, the Chinese red-cooked liquor, the Mexican tomato-and-chili pan reduction underneath enchilada sauce: all reduction-machines.

The defining variable is **time**. The cost is patience. The risk is that the cook walks away.

The failure mode of the reduction-machine is, almost always, going too far. Water leaves at a steady rate over an open pan. Dissolved solids — sugar, glutamate, salt, browned proteins — do not leave. They concentrate. Past a certain point the sauce stops being "deeper" and starts being "burnt." The sugar caramelizes, then scorches; the salt, which was background, becomes foreground. A French chef who has tasted a thousand demi-glaces can tell from a single spoonful whether a sauce was caught at the moment or pushed three minutes past. Most home cooks discover the line by crossing it.

Two practical disciplines protect against this. First, taste the reduction at intervals — every five minutes once the body starts to thicken. The cook is looking for the moment when the sauce coats the back of a spoon and a finger drawn through the coating leaves a clean trail. This is the *nappe* point. It is sensory, not a temperature. At nappe, the sauce comes off. Second, finish off-heat with a small spoon of cold butter, a torn herb, or a few drops of vinegar. The off-heat finish is the moment the reduction goes from concentrated cooking liquid to plated sauce. (See /glossary/sauce.)

A note on the tare. The Japanese tare — brushed onto yakitori, eel for kabayaki, pork for tonkatsu — is one of the most disciplined reduction-machines in any cuisine. The cook keeps a base tare in a jar for months — even years, in some yakitori shops — topping it up with fresh ingredients while skimming reductions off the top. The bottom of the jar carries a flavor history no single cook could have built in a session. Here, the reduction-machine is run *continuously*. Western cooking does not do this; Japanese cooking, in this one corner, does.

When a reduction-machine fails, the failure is almost always one of two things. Caught too early — sauce thin, flavor diffuse, adding salt does not help. Or pushed too late — sauce dark, flavor sharp, only fix is dilute and start over. Both are timing failures, not seasoning failures.

---

4 · Machine 2 — Emulsion

An emulsion is the most theoretically impossible sauce in the kitchen and the one home cooks make most often without thinking about it. The principle is this: fat and water do not mix. An emulsion is the trick of forcing them to mix anyway, by breaking the fat into droplets small enough that the water can hold them suspended. The droplet is the unit of the machine.

There are warm emulsions and cold emulsions, and they fail in different ways.

The warm emulsions — hollandaise, beurre blanc, sabayon — are held by egg yolk lecithin, by the surface tension of finely whipped fat, or by the reduction itself acting as the water phase. They live in a narrow temperature window. Below it, the fat solidifies and the sauce becomes grainy. Above it, the egg proteins coagulate and the sauce scrambles. The window is roughly 55–75 °C, and the cook holds the pan over warm — never hot — water, whisking, and watches the body of the sauce form.

The cold emulsions — mayonnaise, vinaigrette, pesto-alla-genovese — do not need heat at all. They are held by mechanical breaking of the fat (whisking, food-processing, mortar-and-pestling) into droplets that the water phase can keep apart by sheer numbers. The cook drips oil into a yolk, into a mustard-and-vinegar mixture, into a mortar of basil and garlic. The oil never sees direct heat. The structure is mechanical, not thermal.

The defining variable is **shear**. The cook is breaking droplets. More shear, smaller droplets, more stable emulsion. The wrist is the engine.

Pesto is a useful case. The traditional Genovese method pounds basil, garlic, salt, and pine nuts in a marble mortar with a wooden pestle, then drizzles olive oil while continuing to grind. The shear comes from the pestle. The salt and the cell walls of the basil release water, which becomes the continuous phase. The olive oil is broken into droplets by the pestle's circular motion and held in the basil-water suspension. The pine nuts and parmesan contribute proteins and fat that further stabilize the emulsion.

The food processor makes a pesto. It does not make the same pesto. The metal blades shear so hard and fast that the leaves bruise and oxidize; the motor warms the oil; the oil and water do not have time to find the right droplet size. The result tastes of pesto but has the structure of a salsa. Not a criticism of the food processor — it is the right tool when speed matters more than emulsion stability — but the cook should know they are running a different machine.

One safety note. Raw garlic suspended in oil is an anaerobic environment, and *Clostridium botulinum* is an anaerobic organism. Pesto kept at room temperature in oil for a week is a botulism risk. The discipline is: refrigerate immediately, use within three to four days, and never preserve garlic-in-oil at room temperature. Not Liguria-specific. Applies to any raw-garlic-and-oil emulsion.

The Levantine tahini-and-lemon sauce is another cold emulsion, structurally adjacent to mayonnaise. The tahini provides fat and lecithin-like emulsifiers from the ground sesame. Lemon juice and water are added in small quantities, and the cook whisks. The first addition of water seizes the tahini into a thick paste — most home cooks panic here. The fix: keep whisking, add more water, slowly. The seize is the emulsion forming. Past the seize, the sauce becomes a smooth, pourable cream.

Vinaigrette is the emulsion-machine at its least stable: oil-in-vinegar held together by mustard, shallot, or just by shaking. It breaks within minutes. The cook learns to whisk again at the moment of dressing, and to dress at the last moment.

The failure mode of the emulsion-machine is breaking. The sauce splits into a fat layer and a water layer. The cook sees a slick of oil on top, or a curdled grain in the body. Recovery is sometimes possible. A broken hollandaise can often be reformed by whisking a single spoon of cold water into a fresh yolk in a clean bowl, then slowly whisking the broken sauce in by drops. A broken mayonnaise can be reformed the same way. A broken pesto cannot — pesto's break is oxidation, not phase separation, and oxidation is a one-way door.

For the cook who wants this machine handled in detail across the six French foundation sauces, including a documented failure-recovery catalog, the **Sauce Notebook** is the dedicated volume. The Atlas chapter is the lens; the Notebook is the bench manual.

5 · Machine 3 — Slurry

A slurry is the machine cooks reach for when they want body without time. A small amount of starch — cornstarch, potato starch, kuzu, arrowroot, sometimes flour — is dissolved in cold liquid and added to a hot sauce. The starch granules absorb water, swell, gelatinize, and the sauce thickens almost instantly.

This is the machine underneath Chinese stir-fry sauces, American gravies, Japanese ankake, cornstarch fruit thickeners, and roux-thickened French sauces — though a roux is a slightly different sub-machine in which the starch is pre-cooked in fat.

The defining variable is **starch concentration**. Too much, and the sauce becomes pasty, gluey, coating the spoon in a way that reads as "thick" rather than "saucy." Too little, watery. The window is narrower than home cooks expect, and the temptation when a sauce is thin is to add more starch — which almost always overshoots.

Two practical disciplines. First, slurry into cold liquid before adding to hot. Starch granules clump when they meet hot water directly; once clumped, they cannot disperse, and the sauce gets visible lumps. Stir starch into a few tablespoons of cold water, stock, or wine until smooth, then whisk the slurry into the hot pan. Second, add the slurry in stages. The sauce thickens within seconds of the slurry hitting the heat. Add half, stir for thirty seconds, observe the body, decide whether to add the rest. Most thin sauces want less starch than the cook thinks.

A note on starches. Cornstarch thickens at around 85–90 °C and gives a slightly cloudy, soft body. Potato starch and kuzu thicken lower, around 75 °C, with a clearer, glossier body — this is why Japanese ankake, brushed over silken tofu or steamed fish, uses kuzu rather than corn. Arrowroot is the most heat-sensitive; it breaks down if held at heat too long. Flour is slowest and must be cooked out properly — a raw-flour sauce tastes pasty no matter how much salt is added.

A jus lié — the French pan sauce thickened with a small starch — is a slurry-machine running on top of a reduction-machine. The cook deglazes, reduces, then loosens a small amount of arrowroot in cold water and whisks it in at the end. Two machines, one sauce. (See /glossary/sauce.)

The failure mode is over-thickening. Once a slurry has gone too far, dilution is the only fix, and dilution loses concentration. This is why professionals underseason a slurry deliberately and finish with a tasting.

---

6 · Machine 4 — Paste

A paste sauce is the most ingredient-intensive machine in the kitchen. Solids — chilies, nuts, seeds, aromatics, often fat — are ground, pounded, blended, or fried into a dense concentrate, sometimes thinned with stock at the end of the process, sometimes used neat as a condiment. The defining variable is **ingredient concentration**. The cook is not relying on water leaving (reduction) or on a phase trick (emulsion) or on a chemistry trick (slurry). The cook is delivering many ingredients in a small spoon.

This machine sits at the heart of several major cuisines.

Mole poblano is the most famous paste sauce on earth, and one of the most misunderstood. Mole is not "Mexican chocolate sauce." It is a paste-machine running on twenty to thirty ingredients — dried chilies (ancho, mulato, pasilla, sometimes chipotle), nuts and seeds (almond, peanut, sesame), spices (cinnamon, clove, allspice), aromatics (garlic, onion), bread or tortilla as thickener, and a small amount of dark chocolate as one of many ingredients, not the central note. Each is prepared separately — chilies toasted and rehydrated, nuts and seeds toasted, aromatics charred — then ground or blended into a paste, often in multiple passes. The pastes are combined and fried in lard or oil to bloom the aromatics. Stock thins. The whole thing simmers for an hour or more before serving.

On cultural framing. There is no single mole poblano. Mexico has hundreds of regional moles — *mole negro* from Oaxaca, *mole verde* from Puebla and Veracruz, *mole amarillo*, *mole rojo*, *mole de olla*, and countless household variations. "The" mole poblano of most international cookbooks is a twentieth-century codification of a much older and more various tradition. The cook making a mole at home is making *a* mole, not *the* mole.

On safety. The frying of dried chilies and of the combined paste are both moments where oil splatter is severe — the chilies hold steam and pop on contact with hot oil. The discipline is: toast the chilies dry on a comal or in a dry pan first, only briefly bloom them in oil at low temperature, and keep the face back from the pan. Over-toasting also turns the chilies bitter in a way no amount of sugar will fix. Toast until aromatic and pliable, not until dark.

Thai red curry paste is a paste-machine on a Southeast Asian chassis. Dried red chilies, lemongrass, galangal, shallot, garlic, shrimp paste, coriander root, kaffir lime zest, white pepper, salt — pounded in a mortar in a specific order (hardest first, softest last). The traditional method takes thirty to forty-five minutes; the food processor takes

three. As with pesto, the textures differ. Both are sauces; neither is wrong; the cook should know which one they are making.

Tahini is a paste-machine at its purest. Sesame seeds are toasted and ground until the oil releases and the mass becomes a smooth, pourable paste. That paste is then the base for sauces (tahini-and-lemon), dressings, halva, and as a finish over hummus, eggplant, grilled vegetables. The paste *is* the sauce — no further machine needed, only thinning.

Gochujang is a paste-machine running on time. Korean red chili powder, glutinous rice powder, fermented soybean powder, salt, sometimes barley malt — mixed and aged in earthenware jars in the sun for months or years. The fermentation is the machine. The cook does not so much make gochujang as buy it from a producer who has been making it for decades.

The failure mode of the paste-machine is incomplete grinding. A mole with whole almond pieces; a curry paste with chunks of lemongrass; a tahini that is still grainy — these are not "rustic" versions, they are unfinished. The point is that the eater's mouth meets every ingredient at the same time, in fine suspension. A coarse paste delivers one ingredient at a time. The fix is more grinding.

---

7 · Machine 5 — Coulis

A coulis is the cold machine. Raw or near-raw ingredients are pureed, sometimes strained, into a sauce that has never seen heat (or has seen it only briefly). The defining variable is **freshness preserved**. The coulis-machine exists because some ingredients lose their best volatile compounds the moment they are heated. A raw tomato sauce — a *sauce vierge* — is a different food from a cooked tomato sauce, and not a lesser one.

The French poisson-sauce-vierge is the cleanest demonstration. Diced fresh tomato (deseeded, lightly drained), olive oil, lemon juice or vinegar, salt, torn basil, sometimes chopped olive or capers. Combined cold or warmed only briefly to body temperature, spooned over grilled fish at the moment of serving. The tomato has not cooked. The basil has not bruised. The acid is sharp. The dish is built around the fact that the sauce is uncooked.

The Argentine chimichurri is the same machine on a different chassis. Fresh parsley, oregano, garlic, red wine vinegar, olive oil, salt, sometimes red pepper flakes — chopped fine, mixed, rested, served raw over grilled meat. The vinegar penetrates the herb during the rest; the oil carries the aroma; the salt suppresses the bitter edge of raw garlic. Chimichurri kept for a few hours is often better than chimichurri served immediately — the rest is part of the machine.

The generic Mediterranean green-herb-sauce — Italian salsa verde, French sauce ravigote in one of its variants — is the coulis-machine on parsley, capers, anchovy. The Yemenite zhug is the same machine on coriander and chili. The Indonesian sambal matah on shallot, lemongrass, lime. Every cuisine has a coulis-machine sauce. It is the machine for "fresh."

The defining discipline is temperature control. A coulis loses its character the moment it gets warm. The acid dulls; the herb oxidizes; the volatiles escape. Make the sauce within an hour of serving, keep it cool, dress at the last moment.

A note on raw garlic in coulis. The same shelf-life rule applies as with pesto: raw garlic in oil at room temperature is a botulism risk after days. Refrigerate, use within three to four days, do not preserve.

The failure mode is over-processing. A coulis blended on high speed becomes a smooth puree, which is not what the machine delivers. The chop should be fine but visible; the textures should still be readable on the tongue. A pureed chimichurri is closer to a

paste, and it does not refresh meat the way the chopped version does. The cook chooses the texture deliberately.

---

8 · Machine 6 — Jus

A jus is the simplest machine in this chapter — fewest decisions — and the hardest to do well, because the cook's discipline must be in place from the start of the cooking, not at the end. A jus is the cooking liquid of the dish itself — the pan fond after a roast, the deglaze of a sauté, the drippings of a grilled meat, the braising liquid of a stew — lightly worked into a sauce.

There is no addition. The sauce is what was already in the pan.

The defining variable is **fond quality**. If the cook seared in a dry, hot pan at the right temperature, the fond is dark, sticky, and intensely flavored. If the pan was crowded and the meat steamed instead of browned, the fond is pale and thin, and no amount of late deglazing will recover what was not built.

This is the Chapter 5 (Heat and Browning) connection. The jus-machine is downstream of the Maillard reaction. The cook who controls the sear controls the jus.

The simplest jus is a deglaze: meat out, most of the fat off, liquid (wine, stock, water) in, heat high, cook scrapes the fond off the pan bottom with a wooden spoon while the liquid reduces. Off-heat, cold butter whisked in. Three minutes.

The French sole-meuniere is the jus-machine at its most specific. Fish dredged in flour and cooked in foaming butter; the butter browns in the pan during cooking; at the end, lemon juice off-heat and the brown butter (*beurre noisette*) becomes the sauce. The "sauce" is the cooking medium itself, gone from butter to brown butter to lemon-brown-butter. The sauce is what the cooking left.

The Japanese braise-jus — fish or vegetables simmered in dashi, soy, mirin, sake, the liquid reduced slightly at the end — is the same machine on a Japanese chassis. The Mexican guisado-jus, the Italian umido-jus, the Vietnamese kho-jus are all the same machine. The dish makes its own sauce.

A note on brown butter safety. The window between *beurre noisette* (nut-brown, aromatic) and *beurre noir* (black, acrid, bitter) is roughly fifteen seconds. Watch the foam. When the foam subsides and small brown specks appear at the bottom, the butter is done — off-heat immediately, lemon juice in. Past this point the butter goes bitter very fast. **Watch the foam, not the clock.**

The failure mode is upstream. If the sear was wrong, the jus is wrong. There is no recovery at the deglaze stage. A cook trying to "fix" a pale jus with soy sauce or tomato

paste is, in effect, abandoning the jus-machine and rebuilding the sauce as a reduction or a paste. Legitimate, but it is a different sauce.

---

9 · Reading sauces from other cuisines

Once the six machines are in the cook's head, the foreign sauce becomes legible. Here are several readings, intentionally fast, to demonstrate the lens.

Tantanmen sauce — the chili-sesame sauce of the Sichuan-Japanese hybrid noodle tantanmen — is a *paste-machine* (sesame paste, chili paste, soy, sometimes peanut) thinned with broth at the moment of serving. Two machines stacked: paste does the flavor work, broth does the carrier work.

Béchamel is a *slurry-machine* using a cooked-roux sub-component, milk as the liquid, with aromatics (nutmeg, bay, sometimes anchovy) infused as the sauce thickens. Flour cooked in butter rather than starch in cold water changes the texture (rounder, more lactic) but not the underlying machine.

Beurre blanc is a *warm emulsion-machine* with an unusual continuous phase: a reduction of white wine, vinegar, and shallot is the water phase; cold butter is whisked in cube by cube as the fat phase. Below 50 °C the butter solidifies; above 80 °C the emulsion breaks. The window is everything.

Creme-anglaise is a *warm emulsion-machine* with egg yolk as both emulsifier and thickener. Yolks tempered with hot milk, then cooked over low heat until the sauce reaches 80–85 °C internal — the moment the yolk proteins thicken the sauce but have not yet curdled. Past 85 °C the yolks scramble. Below 80 °C the sauce is thin.

A safety note on crème anglaise. The 80–85 °C internal target is also the temperature that reduces raw-egg pathogens to safe levels for most eaters. For vulnerable populations — pregnant, immunocompromised, very young, very old — either use pasteurized eggs, or verify the 80 °C target with an instant-read thermometer. Under-80 °C crème anglaise served to vulnerable populations is a real risk, not a theoretical one.

Gastrique — the French sweet-sour caramel base — is a *reduction-machine* running on sugar and vinegar. Sugar is melted to caramel, vinegar is added (the caramel hisses and seizes), and the mixture is reduced to a syrup that becomes the base of fruit sauces for duck and game. Caramel too pale: gastrique tastes thin. Too dark: bitter dominates sour.

A safety note on gastrique. Caramel at 170–190 °C is a severe burn risk. The sugar sticks to skin and continues to burn at depth — caramel burns are among the most dangerous in the home kitchen. Have ice water at the ready before the sugar goes on the heat.

Never add cold liquid to hot caramel without standing back — the steam and spatter are violent. Pour vinegar in a slow stream from the side of the pan, not directly above. This is the moment in the kitchen where most cooks should pause and check that nothing is rushed.

Mayonnaise is a *cold emulsion-machine* with egg yolk as emulsifier, oil as fat phase, vinegar or lemon juice as water phase. The same machine as hollandaise, without the heat.

The point is not memorization. The cook now looks at a sauce and asks, before anything else, *which machine is this?* The question is the lens. It does not tell the cook how to make the sauce. It tells the cook what kind of attention to bring.

---

10 · The "broken sauce" diagnostic

When a sauce fails, the cook's first move is usually to add something. Almost always the wrong move. The right move is to ask which machine failed and how.

The following is a small decision tree. The cook looks at the sauce, then walks through the five questions in this order. The first question that answers *yes* is the diagnosis.

```
The sauce is not right. Try these in order:

  1. Did the machine over-concentrate?
       Test: the sauce tastes burnt, salty, sharp, or bitter
       in a way the original ingredients did not.
       Diagnosis: reduction-machine went past its window.
       Fix: dilute with stock or water, taste, decide whether
       to start over or to thin and re-balance.

  2. Did the emulsion break?
       Test: visible oil layer on top, or grainy curdled body
       in a sauce that should be smooth.
       Diagnosis: emulsion-machine failed (too much heat,
       too little shear, fat added too fast).
       Fix: hollandaise/mayo — re-emulsify in a fresh yolk
       with a spoon of cold water. Pesto — accept the break;
       it cannot be reformed.

  3. Did the slurry overshoot?
       Test: the sauce coats the spoon like paste; it tastes
       starchy, not concentrated.
       Diagnosis: too much starch, or starch added too fast,
       or starch not slurried into cold liquid first.
       Fix: thin with hot stock or water, taste, re-season.
       Do not add more starch.

  4. Did the paste fail to integrate?
       Test: visible chunks of one ingredient on the spoon;
       the eater meets the ingredients in sequence rather
       than as one.
```

Diagnosis: incomplete grinding (mortar or processor was not run long enough).
Fix: more grinding. There is no substitute.

5. Did the coulis go warm?
   Test: the sauce tastes dull, the herb has darkened, the brightness is gone.
   Diagnosis: the coulis sat too long, or was warmed, or was processed at high speed.
   Fix: make a fresh small batch. A warmed coulis does not recover.

If none of the five applies, the sauce was probably built on the wrong machine for what the dish wanted. That is not a sauce failure. That is a sauce-selection failure, and it is fixed at the menu level, not at the stove.

This decision tree, like the one in Chapter 1, is the single most useful artifact of this chapter. It does not teach the cook a new recipe. It teaches them which question to ask first when the sauce is not arriving.

---

11 · Chef's view

I once worked briefly in a kitchen in Mexico City where the mole had been on for two days before service. The cook in charge — a woman in her sixties who had taken over the station from her mother — would not let anyone touch the pot but herself. She tasted it at the start of each shift, said nothing, adjusted nothing visible, walked away. At the end of service she would taste again and write a single line in a notebook.

I asked her, on the third evening, what she was writing. She said she was tracking which chilies had been wrong that week. Not bad — *wrong*. A batch of pasilla that was a little flat. A batch of mulato over-toasted by the supplier. She would adjust the proportions in the next mole accordingly. She had a running map of the chilies' character across the season, and the mole was, for her, a long machine that took ingredient drift as input and produced a stable plate as output. The two-day cook was not "concentration." It was *correction*.

I think about her often. Most home cooks treat the sauce as a single recipe to be executed once. The chef treats it as a machine that gets tuned across many runs. The first mole the home cook makes is not really a mole — it is the first run of a machine. The second is closer. The fifth is closer still. The cook who keeps the same sauce on rotation for a year — the same pomodoro, the same vinaigrette, the same tare — is operating a machine whose tuning improves continuously.

This is what is meant by *cooking as a practice*. The recipe is the starting condition. The machine is the variable you tune. The plate is the moment of measurement. The notebook is where the tuning lives.

The sauce, in this sense, is the most honest part of the meal. It carries the cook's calibration most visibly. A good cook with a great fish and a flat sauce is a cook whose calibration is incomplete. A modest cook with a great sauce has solved something. The eater can taste the difference, even when they cannot name it.

---

12 · Diagrams and tables (proposed)

This chapter, when it goes to layout, will use three visualizations.

Diagram 1 — The six machines as a wheel. A circular figure with six labeled segments — reduction, emulsion, slurry, paste, coulis, jus. Inside each segment, three representative sauces from different cuisines, anchored to the machine that runs underneath them. The reader can see at a glance which machines are common across cuisines (reduction, emulsion, paste are universal) and which are uneven (coulis is heavy in Mediterranean and Latin American kitchens, lighter in East Asian; jus is the central French sauce machine and present-but-secondary elsewhere).

Diagram 2 — The machine-by-axis grid. A 6×7 grid: six machines down the left, seven flavor axes (from Chapter 1) across the top. Each cell marks which axis a given machine is primarily delivering. Reduction delivers umami and concentrated aroma; emulsion delivers fat as carrier; slurry delivers body (texture); paste delivers compressed aroma and heat; coulis delivers acid and fresh aroma; jus delivers the integrated flavor of the cook itself. The grid makes visible that the machines are not interchangeable — each is engineered to carry a particular axis.

Diagram 3 — The "broken sauce" decision tree. A visual version of §10. Five branches, each with a one-line test and a one-line fix. Designed to be printed and posted near the stove.

---

13 · Summary

The reader who has finished this chapter has gained, at minimum, four things.

First, the reframe. A sauce is not a topping. It is a concentration machine. The cook's job is to choose which variable to concentrate and which of six machines to use.

Second, the six machines. Reduction, emulsion, slurry, paste, coulis, jus. Every sauce in every cuisine is running one of these, sometimes two stacked. The ingredients change; the machines do not.

Third, the diagnostic. When a sauce fails, the cook now has a five-question script. Which machine, and how did it fail? The first *yes* is the fix. The cook is no longer adding things at random.

Fourth, the eye for other cuisines. The cook can look at a Korean gochujang glaze, a Levantine tahini sauce, an Argentine chimichurri, a Sichuan chili oil — and see, before tasting, which machine is running. The recipe becomes legible because the underlying machine is.

What the reader has *not* gained is a recipe for any one sauce in the full discipline of its tradition. That is what the rest of the site, and the rest of the kitchen, are for. The Atlas chapter is the lens. The next page is the worked case.

---

14 · What comes next

The next chapter of this Atlas is about **condiments and preservation** — the relatives of the sauce family engineered to hold their flavor across weeks, months, sometimes years. Pickles, ferments, cured pastes, dried chili pastes, vinegars. The sauce-machine compressed flavor into a moment on the plate. The condiment-machine compresses it into the pantry.

For the cook who wants this chapter's lens applied to one specific corner — the six French foundation sauces, with twenty-four documented failure modes and their recoveries, written at recipe granularity rather than theory — the **Sauce Notebook** is the dedicated companion volume. The Atlas chapter is the global theory: six machines, every cuisine. The Sauce Notebook is the applied French case at workbench depth. Read together or separately.

The cook who has read this chapter does not need to wait. The next sauce you make, before reaching for any ingredient, ask: *which machine am I running?* That question, asked once, changes the entire posture of sauce work. The cook stops trying to fix an unnamed problem and starts operating a named machine.

A sauce is not the most prestigious part of the meal, and not the most photographed. But the cook who can run all six machines, and knows which one each plate is asking for, can build a meal from anywhere. That is the small, durable skill this chapter exists to hand over.

日本語 → · Español →

Japanese chef · Culinary author · Ho Chi Minh City